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The Impact of International Cooperation in Public Safety Training and Education: the Case of the Kosovo Academy for Public Safety (KAPS) 2014-2022

*Skender Agaj*¹

The paper aims to enlighten impact of the international cooperation on establishment and development of public safety training and education system in Kosovo according to internationally recognized standards. There will be shown efforts of international partners, mainly the Western world, consisted namely by the United States and the European Union, to address policies and strategies of capacity building in law enforcement and public safety of an after-war country, such is Kosovo.

Moreover, there will also be explained the absorbing capacities of a consolidating society, such is the one of Kosovo, to improve and strengthen its educational system both in vocational training and higher education in the field of public safety. This, amongst others, has been achieved through the IPA funds of the European Union, setting up a well-established system according to the European Qualification Framework (EQF). Additionally, there will also be described internationally recognized quality assurance achievements, such is accreditation and re-accreditation of the highest possible level from the US-based International Association of Directors of Law Enforcement Standards and Training (IADLEST). Moreover, due to the certain status of Kosovo in its European integration path, there will also be described concrete results of inclusion of Kosovo law enforcement officers in the different capacity building activities of the European Union Agency on Law Enforcement Training (CEPOL).

Keywords: Kosovo, public safety, law enforcement, international cooperation, vocational training, higher education, quality assurance

I. Introduction

According to the Kosovar Center for Security Studies (KCSS), there are three periods that characterize security sector in Kosovo during the first decade after the war (1999 - 2009). The first period was from 1999 - 2005, known as the Security Sector Building (SSB), when the competences in this sector belonged to the Special Representative of the Secretary General (SRSG), that was, in fact, Head of the United Nations Mission in Kosovo (UNMIK) and locals had no responsibilities during this period. The second period lasts from the end of 2005 until the beginning of 2008, when the competences were gradually transferred from internationals to locals, it was prepared the Internal Security Sector Review (ISSR) and the newly established ministries of Internal Affairs (MIA) and the Justice (MJ) gradually got competences from the UNMIK. Whereas the third period started when Kosovo declared the independence and was drafted and entered into force the Constitution of the Republic of Kosovo, by which new security institutions were established and some others were reformed.²

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² Qkss.org, ‘Chronology of Security Sector Reform in Kosovo’, *Kosovar Center for Security Studies*, July 21, 2009,

Due to the specifics of the security sector of Kosovo especially after the war of 1999 and onwards, there have been published a lot of different materials, where it has been widely explained and elaborated this issue. It has already been known the fact that, as a post-conflict area, the responsibilities for maintaining peace and security in Kosovo after 1999 for several years have belonged to the international community. Namely the United Nations Mission in Kosovo (UNMIK), NATO-led Kosovo Force (KFOR) and other mechanisms were the ones that established and further developed Kosovo Law Enforcement institutions.

Throughout the years, it is an institution that played an important role as regarding the capacity building of public safety and law enforcement institutions of Kosovo. Established by the OSCE Mission in Kosovo, the Kosovo Police Service School (KPSS) was the only institution in Kosovo in charge of capacity building, first of all for the police officers, but later on also for other law enforcement institutions. The institution through the time changed its name firstly to the Kosovo Center for Public Safety Education and Development (KCPSD) (2006 - 2011) and later on to Kosovo Academy for Public Safety (KAPS), a name that also holds nowadays.^{3 4}

However, on the recent years, supported and assisted always by the international partners, KAPS has gone through a significant transformation from an institution giving the necessary skills to the police and other law enforcement officers for the after-war emergent security needs to a modern European institution that provides both vocational training and higher education for six public safety institutions according to the most advanced European and international standards in the field. Having the current name since December 2011, when it entered into force the Law No. 04/L-053 on Kosovo Academy for Public Safety, KAPS is an Executive Agency of the Kosovo Ministry of Internal Affairs (MIA) “responsible for providing training and higher education, implementation of policies and strategies of training, higher education and the development of capacities in the field of public safety for all institutions of public safety, but not limited to: Kosovo Police, Correctional Service, Probation Service, Kosovo Customs, Emergency Management Agency and the Kosovo Police Inspectorate.”⁵

Since that time, KAPS has achieved significant results by achieving to validate all the vocational training curricula for all the six public safety institutions according to the Kosovo and thus European Qualification Framework (EQF), to establish higher education dedicated to the public safety officers, including their mid and senior management staff, as well as initiating, developing and further extending the internationalization of the institution by and with different European and international mechanisms in and related to the Public Safety education for both educational levels mentioned above.

II. Kosovo Public Safety training and education system and the EU and US contribution and recognition

In this main part of analysis, there will be discussed the specific system that Kosovo, supported by its international partners, choose to give knowledge to its Public Safety institutions. In the continuance, there will be described the impact of both EU-funded Twinning Projects that were

https://qkss.org/images/uploads/files/Chronology_of_Security_Sector_Reform_in_Kosovo_762910.pdf

³ Osce.org, ‘OSCE Mission in Kosovo and Kosovo Academy for Public Safety’, *Organization for Security and Co-operation in Europe*, December 17, 2020, <https://www.osce.org/mission-in-kosovo/474018>

⁴ Aksp-ks.net, ‘Kosovo Academy for Public Safety: Background’, Kosovo Academy for Public Safety, <http://aksp-ks.net/?page=2,6>

⁵ Gzk.rks-gov.net, ‘Law No. 04/L-053 on Kosovo Academy for Public Safety’, Official Gazette of the Republic of Kosova No. 26 (online), 2011, <https://gzk.rks-gov.net/ActDocumentDetail.aspx?ActID=2785>

implemented in the Kosovo Academy for Public Safety, the international recognition of the vocational training of this institution through the International Association of the Directors of Law Enforcement Standards and Training (IADLEST), as well as benefit of these officers of different levels through two EU mechanisms: the EU Agency for Law Enforcement Training (CEPOL) and the Erasmus+ program.

A Kosovo's unique public safety educational system: how and why did it start?

Undoubtedly the international community has had an extraordinary role on security in Kosovo after the war of 1999. As Geci Sherifi pointed out, “the shaping and direction of the security policies in Kosovo after the end of the war was conducted mainly by the international actors as responsibility for security belonged to the international community and was progressively transferred to the Kosovo security institutions.”⁶ One of these institutions was also the one where the human resources of these institutions were created, that is now called the Kosovo Academy for Public Safety.

Kosovo is relatively small country with also small number of inhabitants: it has in total 10,887 square kilometers with a total number of population estimated in 2023 of 1,964,327 inhabitants⁷. Therefore, since the establishment on September 1999 of the Kosovo Police Service School (KPSS), the previous name of the Kosovo Academy for Public Safety (KAPS), apart from the Kosovo Police Service (KPS), previous name of the Kosovo Police (KP), in its second year was immediately joined also the basic training for the Kosovo correctional officers, nowadays represented by the Kosovo Correctional Service (KCS). After two years, in 2002, apart from two aforementioned institutions, on that time in KPSS it started also training of Customs officers, thus being known as an institution specialized for professional training not only for police, but also for other Public Safety agencies.

During 2006, name of the institution changed into Kosovo Center for Public Safety Education and Development (KCPSED), when the competences were transferred gradually from internationals to locals.⁸ Finally, on December 2011, the Assembly of Kosovo approved the Law No. 04/L-053 on Kosovo Academy for Public Safety, which changed again the name of the institution, made responsible the institution to provide vocational education, but also higher education, to six Public Safety institutions in the country: Kosovo Police, Correctional Service, Probation Service, Kosovo Customs, Emergency Management Agency and the Kosovo Police Inspectorate.⁹

The role of the OSCE Mission in Kosovo during this period of time was to involve actively the human rights and democratic policing principles to train the Kosovo police officers. But before coming to this stage, the recruitment process included oral interview, written examination,

⁶ Shkendije Geci Sherifi, ‘The Role of International Organisations in the Development of Security Sector in Kosovo: Advantages and Constrains’, *Hungarian Defence Review*, Special Issue Vol. 147, Nr. 1-2 (2019), 85.

⁷ Cia.gov, The World Factbook: Kosovo - Country Summary, <https://www.cia.gov/the-world-factbook/countries/kosovo/summaries>

⁸ Osce.org, ‘OSCE Mission in Kosovo and Kosovo Academy for Public Safety’, *OSCE Mission in Kosovo*, <https://www.osce.org/files/f/documents/c/7/474018.pdf> 2021

⁹ Official Gazette of the Republic of Kosova, Law No. 04/L-053 on Kosovo Academy for Public Safety.

psychological test, medical exam and background investigation¹⁰, procedures that continued to be applied also nowadays for selection of the Kosovo Police cadets.¹¹

So, due to the aforementioned facts and institutional development into stages, it was seen reasonable to have different types of capacity building and further education activities, each of them depending on the educational level and previous work experience of the respective officers, for six Public Safety institutions together under the same roof. There were two main reasons behind it: firstly, by being trained together, officers establish and further strengthen their cooperation and thus build network and trust amongst them, that is very much necessary when they have to take part jointly in the operations, e.g. police and customs officers in the borders, police and emergency management officers in different types of disasters, etc.; and secondly, the cost effectiveness reflecting on financial rationality using same facilities and services for learning, eating, accommodation, ICT, logistics etc. to all the Public Safety officers in the country. As a result of this approach, there could be seen quite often law enforcement officers coming from different institutions who take part on the same training courses.¹²

B Coordinated assistance on public safety education sector: two EU-funded Twinning Projects and overall local and international support

Through approval of the Law on the Kosovo Academy for Public Safety by the Assembly of Kosovo, that entered into force on December 2011, KAPS got the competence to provide both vocational training and higher education, not only for the officers of Kosovo Police (KP), Kosovo Correctional Service (KCS), Kosovo Customs (KC) and the Emergency Management Agency (EMA), to whom it was provided first component, the vocational training, but also to other two institutions, such are the Police Inspectorate of Kosovo (PIK) and the Kosovo Probation Service (KPS).¹³ It meant that it was created a great institutional structure for the purpose of training and education, that could bring on the board all the Public Safety, respectively Law Enforcement institutions in the country. This was indeed a solid fundament to make the decision-makers think a step ahead: how to further consolidate the already existing vocational training in the quality assurance and accreditation point of view and, paralelly, how to further upgrade in general the education in this field, that on that time had already a bit more than 12 years in a more or less same track.

As regarding the political orientation and ideology, Kosovo has chosen to be part of the pro-Western liberal democracies, being characterized, amongst others, by the following values: respect of human rights, rule of law and free market economy. Apart from a free will of the waste majority of its citizens, it is also a logical determination, due to the fact that US, UK, EU Member States and other overseas liberal democratic countries have played a decisive role on ending the Milošević regime over Kosovo and providing humanitarian intervention to end the ethnic cleansing and

¹⁰ Oya Dursun-Ozkanca and Katy Crossley-Frolick, 'Security sector reform in Kosovo: the complex division of labor between the EU and other multilateral institutions in building Kosovo's police force', *European Security*, (2012), 4.

¹¹ Kosovopolice.com, 'Open vacancy for recruiting police officers according to the foreseen competition conditions based on the Decision of the General Director of Kosovo Police No. 01/0344 on 19.06.2023', 2023, https://www.kosovopolice.com/wp-content/uploads/2023/07/01_SHQIP.pdf

¹² The information and perception on this paragraph have been achieved through the personal observation and discussion of the author with different officers about the KAPS system of Public Safety education, as a result of the working experience for more than 14 years, from March 2009 and onwards.

¹³ Official Gazette of the Republic of Kosova, Law No. 04/L-053 on Kosovo Academy for Public Safety.

massive killings of the majority ethnic Albanians in Kosovo from that regime that ruled in Serbia in 1999.^{14 15}

Therefore, due to the Kosovo's pro-European and pro-Western political orientation, its aspiration for EU integration is one of the coincidences of this orientation. In general terms, it means that the country has to adapt its legislation in line with the *Acquis*. Therefore, the country made a lot of efforts in order to be closer to the EU in its EU integration path. In the aspect of Public Safety capacity building, it meant that there have to be taken huge reforms in order to adjust it according to the European standards.

In Kosovo case, luck in misfortune was that, starting from September 1999, when the Kosovo Police Service School (KPSS), back than established by the OSCE Mission in Kosovo, training of police officers in particular and of the other Public Safety institutions in general started from the very beginning. It meant that previous communist sytem police officers and superiors, former Kosovo Liberation Army (KLA) warriors, as well as young boys and girls with no previous experience, they all had to attend the same basic training and thus had to follow the same Public Safety educational standards, coming generally from the liberal democratic countries.

In the national level, a step ahead on harmonization of educational system between Kosovo and the EU was taken in the same year when it entered into force the Law on KAPS, in 2011, when the National Qualification Authority (NQA) drafted the National Qualification Framework (NQF), supported by the EU-funded project "EU KOSVET - V", that is according to the European Qualification Framework (EQF)¹⁶.

Due to the above-mentioned facts, Kosovo choosed a very prosperous way to further upgrade and improve its Public Safety education. Therefore, from 2012 until 2014 it was implemented the EU-funded Twinning Project "Improved Education in Public Safety and Security Sectors in Kosovo", implemented by Finland and Estonia. Amongst other achievements, the most notable outcome of this project was undoubtedly establishment of the 4-year Bachelor level study program on Public Safety, with branches of: Police and Police Inspectorate, Corrections and Probation, Customs and the Emergency Management.^{17 18}

Prior to this, it was initially completed the legal bases (consisting of 7 by-laws), accreditation process and donation of necessary books to serve as a literature for new students, a valuable contribution funded by the Embassy of the Federal Republic of Germany in Kosovo and implemented by the OSCE Mission in Kosovo, as a great example of international coordination.¹⁹ Furthermore, the project served as a good basis for formalizing cooperation between KAPS and respective Finnish and Estonian institutions, such are: Police College of Finland, Estonian

¹⁴ Sidita Kushi, 'Does the West still want a democratic Kosovo?', *Aljazeera*, July 14, 2023, <https://www.aljazeera.com/opinions/2023/7/14/does-the-west-still-want-a-democratic-kosovo>

¹⁵ Ivo H. Daalder and Michael E. O'Hanlon, *Winning Ugly - NATO's War to Save Kosovo* (Washington, DC: Brookings Institution Press, 2001), 21.

¹⁶ Akkks.rks-gov.net, National Qualification Framework (NQF), *National Qualification Authority*, 2011, <https://akkks.rks-gov.net/Documents?idType=1015>

¹⁷ Aksp-ks.net, Twinning Project completed successfully, *Kosovo Academy for Public Safety*, 11.06.2014, <http://aksp-ks.net/?page=2,4,325>

¹⁸ Aksp-ks.net, Opening of Faculty of Public Safety, *Kosovo Academy for Public Safety*, 15.10.2023, <http://aksp-ks.net/?page=2,4,350>

¹⁹ Aksp-ks.net, The OSCE donates 300 books for Kosovo Academy for Public Safety, *Kosovo Academy for Public Safety*, 10.03.2016, <http://aksp-ks.net/index.php?page=2,4,449>

Academy of Security Sciences, Laurea University of Applied Sciences in Finland and the Training Institute of Prison and Probation Services in Finland.²⁰

KAPS further continued its way of improvement and transformation by the same tool. So, from 2016 until 2019, the second in row EU-funded Twinning Project “Further Support to Public Safety Education in Kosovo” was implemented by the same EU Member States, Finland and Estonia. In difference of the first one, the second Twinning Project was more focused on consolidation of the vocational training. It also consisted of three Components: the first one entitled “Contribution to a sustainable vocational training structure for all Public Safety Agencies” was dealing with the validation of vocational training curricula for all six Public Safety institutions; the second one “Contribution to KAPS Bachelor degree program further upgraded and advanced” made possible re-accreditation of the Bachelor study program and further continued the idea of having a Master degree within the Academy, a follow-up of a Feasibility Study done previously by the OSCE Mission in Kosovo; whereas the third one “Contribution to KAPS institute of Research and Development becoming fully functional for the benefit of all public safety agencies in Kosovo” was exclusively dealing with the R&D Institute of the KAPS Faculty of Public Safety (FPS).²¹

C International recognition: US-based IADLEST accreditation and the Award of Excellence

Since the establishment of the higher education at KAPS until 2022, the institution was subject to several external quality assurance processes. As regarding the higher education, KAPS study program was initially accredited from 2014 to 2017, re-accredited from 2017 - 2020 (COVID-19 period accreditation extension till 2021), for the second time re-accredited from 2021 to 2024 and the institutional re-accreditation was received from 2017 to 2022, and again re-accredited from 2022 - 2023. Whereas as regarding the vocational training validation and accreditation, there were passed both institutional accreditation and program validation from 2018 to 2021 and than again both of them from 2021 to 2024.²²

The most notable accreditation is undoubtedly the international one received by the US-based International Association of Directors of Law Enforcement Standards and Training (IADLEST). In the first one, received on 15 May 2018 until 14 May 2021, KAPS was the only institution worldwide out of the US to receive such an accreditation.²³ Whereas by the re-accreditation received on 1 November 2021 that is valid until 20 October 2024, KAPS was awarded with the Award of Excellence, as the second institution in the world after another institution in the US to receive such a valuable recognition.^{24 25}

These achievements undoubtedly could not be achieved without a strong support and contribution in all the stages of development of the institution after 1999 from few US governmental

²⁰ Aksp-ks.net, KAPS International Cooperation - International cooperation, *Kosovo Academy for Public Safety*, <http://aksp-ks.net/?page=2,247>

²¹ Kosovoprojects.eu, Further Support to the Kosovo Academy of Public Safety (KAPS), *KosovoProjects.EU*, <https://kosovoprojects.eu/project/further-support-to-the-kosovo-academy-of-public-safety-kaps/#>

²² Aksp-ks.net, SIGURIMI I CILËSISË (from Albanian: QUALITY ASSURANCE), Akreditimet (from Albanian: Accreditations), *Kosovo Academy for Public Safety*, <http://aksp-ks.net/?page=1,284>

²³ Aksp-ks.net, *Kosovo Academy for Public Safety*, http://aksp-ks.net/repository/docs/IADLEST_-_May_15,_2018_-_2021.pdf

²⁴ Aksp-ks.net, *Kosovo Academy for Public Safety*, http://aksp-ks.net/repository/docs/IADLEST_-_November_1,_2021-2024.pdf

²⁵ Justice.gov, Kosovo: Public Safety Academy receives International Reaccreditation, *The United States Department of Justice*, <https://www.justice.gov/criminal-icitap/blog/kosovo-public-safety-academy-receives-international-reaccreditation>

mechanisms in charge of internal affairs and justice in the country. These efforts have been led by the US Embassy in Prishtina, Kosovo, respectively the Office in Kosovo of Bureau of International Narcotics and Law Enforcement Affairs (INL) of the US Department of State through the Program in Kosovo of International Criminal Investigative Training Assistance Program (ICITAP) of the US Department of Justice.²⁶

D Benefits of Kosovo Law Enforcement officers from the CEPOL and the Erasmus+: a quantitative analysis

After a bit more than 3 years from the first introductory visit to KAPS²⁷, the EU Agency for Law Enforcement Training, CEPOL, than called as European Police College, signed in Kosovo on 27 March 2017 the so-called Working Arrangement with KAPS on behalf of Kosovo²⁸. As a result of it, since then until the end of 2022, there have been in total 210 Kosovo law enforcement officers who benefited from the various CEPOL capacity building activities, such are: residential courses (both in Kosovo and abroad), online courses, exchanges, study visits and preparatory meetings. The officers come from all the law enforcement agencies of the country, including: Kosovo Police (KP), Kosovo Customs (KC), Financial Intelligence Unit (FIU), Kosovo Tax Administration (KTA), Kosovo Forensic Agency (KFA), prosecution and judiciary, as well as a smaller number from the Kosovo Academy for Public Safety (KAPS) itself.²⁹

Moreover, Kosovo Academy for Public Safety (KAPS), including the Public Safety Institutions of the country, have also benefited from the opportunities given through the Erasmus+ program of the EU, mainly on mobility of students, academic and administrative staff. As a result of the efforts to benefit from this program, from 2016, when KAPS started to use it, until the end of 2022, in total there have participated 105 students, members of both academic and administrative staff, 90 out of them outgoing and 15 incoming. The institutions KAPS has implemented the mobilities with are: Estonian Academy of Security Sciences (EASS) in Tallinn, Estonia; Main School of Fire Service (SGSP) in Warsaw, Poland; The Brandenburg School of Applied Police Sciences in Oranienburg, Germany and the Norwegian University Police College (PHS) in Oslo, Norway.³⁰

III. Evaluation of KAPS through the EU Progress Reports from 2015 until 2022

Even though Kosovo Academy for Public Safety (KAPS) by this name exists since December 2011, but with its two previous names since 1999, it was mentioned firstly as an institution in the EU Progress Report for Kosovo just in 2015. Therefore, the EU Progress Report for 2015 recognized it as an institution in charge of both basic and specialized training in the field of Public Safety. Moreover, it also mentioned the pillar of higher education that was established within the institution a year ago, in 2014: “The Kosovo Academy for Public Safety is responsible for basic

²⁶ General information about the US Embassy in Kosovo contribution in Security and Justice can be found at: [Xk.usembassy.gov](https://xk.usembassy.gov), International Narcotics and Law Enforcement, Sections & Offices, *U.S. Embassy in Kosovo*, <https://xk.usembassy.gov/embassy/pristina/sections-offices/>

²⁷ [Cepol.europa.eu](https://www.cepola.europa.eu), CEPOL visits the Kosovo Academy of Public Safety, *CEPOL*, <https://www.cepola.europa.eu/newsroom/news/cepola-visits-kosovo-academy-public-safety>

²⁸ [Cepol.europa.eu](https://www.cepola.europa.eu), CEPOL signs working arrangement with the Kosovo Academy of Public Security, *CEPOL*, <https://www.cepola.europa.eu/newsroom/news/cepola-signs-working-arrangement-kosovo-academy-public-security>

²⁹ Source: KAPS External Relations Division

³⁰ Ibid.

and specialised training and offers a bachelor’s programme in public safety”.³¹ All the EU Progress Reports of the years after 2015 also mentioned always KAPS as an institution responsible for training and education in Public Safety, evaluating its good level. Throughout the years, from 2015 until 2022, in all the EU Progress Reports there were tiny changes in wording when it comes to KAPS. More precisely, the Reports of 2016 and 2018 (that covered also 2017) described it as an institution that provides “a good level of initial and continuous training to police and public security bodies such as correctional or customs services”,^{32 33} whereas in the Reports of the next years, 2019 and 2020, the word “continuous” was replaced with “in-service”, not making and significant change.^{34 35} The Report covering 2017 also mentioned that the Academy signed the Working Arrangement with the CEPOL, putting it at the section of “Implementation and enforcement capacity”, apart from the section it was almost always in all the EU Progress Report, the “Institutional set-up and legal alignment”.³⁶ Formulation changed a bit in the Reports of the upcoming years, 2021 and 2022, by replacing the word (good) “level” to (good) quality. Moreover, the Report of 2021 gave a more comprehensive description of the scope of the Academy by mentioning the education for police and other agencies: “The Kosovo Academy for Public Safety provides a good quality of education for police and other public safety agencies in Kosovo.”³⁷ Whereas the Report of 2022 was referring to the scope of the Academy only as a good quality education: “The Kosovo Academy for Public Safety provides good quality education.”³⁸ So, even it is not any significant change in the formulation of the sentences for the Academy from 2015 to 2022 in the EU Progress Report, the facts that it is mentioned establishment of higher education, signing the Working Arrangement with CEPOL, as well as replacement of word (good) “level” with (good) “quality”, it shows clearly for the achievements of the Academy and its relatively good reputation in comparison to overall evaluation of Kosovo through these Reports.

³¹ Neighbourhood-enlargement.ec.europa.eu, COMMISSION STAFF WORKING DOCUMENT Kosovo* 2015 Report, *European Commission*, Brussels, November 10, 2015 18-19, https://neighbourhood-enlargement.ec.europa.eu/system/files/2018-12/20151110_report_kosovo.pdf

³² Neighbourhood-enlargement.ec.europa.eu, COMMISSION STAFF WORKING DOCUMENT Kosovo* 2016 Report, *European Commission*, Brussels, November 9, 2016, 69, https://neighbourhood-enlargement.ec.europa.eu/system/files/2018-12/20161109_report_kosovo.pdf

³³ Neighbourhood-enlargement.ec.europa.eu, COMMISSION STAFF WORKING DOCUMENT Kosovo* 2018 Report, *European Commission*, Strasbourg, April 17, 2018, 29 and 31, <https://neighbourhood-enlargement.ec.europa.eu/system/files/2019-05/20180417-kosovo-report.pdf>

³⁴ Neighbourhood-enlargement.ec.europa.eu, COMMISSION STAFF WORKING DOCUMENT Kosovo* 2019 Report, *European Commission*, Brussels, May 29, 2019, 33, <https://neighbourhood-enlargement.ec.europa.eu/system/files/2019-05/20190529-kosovo-report.pdf>

³⁵ Neighbourhood-enlargement.ec.europa.eu, COMMISSION STAFF WORKING DOCUMENT Kosovo* 2020 Report, *European Commission*, Brussels, October 6, 2020, 40, https://neighbourhood-enlargement.ec.europa.eu/system/files/2020-10/kosovo_report_2020.pdf

³⁶ COMMISSION STAFF WORKING DOCUMENT Kosovo* 2018 Report, *European Commission*.

³⁷ Neighbourhood-enlargement.ec.europa.eu, COMMISSION STAFF WORKING DOCUMENT Kosovo* 2021 Report, *European Commission*, Strasbourg, October 19, 2021 39, <https://neighbourhood-enlargement.ec.europa.eu/system/files/2021-10/Kosovo%202021%20report.PDF>

³⁸ Neighbourhood-enlargement.ec.europa.eu, COMMISSION STAFF WORKING DOCUMENT Kosovo* 2022 Report, *European Commission*, Brussels, October 12, 2022, 44, <https://neighbourhood-enlargement.ec.europa.eu/system/files/2022-10/Kosovo%20Report%202022.pdf>

IV. Conclusion

Kosovo was lucky to start everything from the beginning after the war of 1998 - 1999. The newly established Kosovo Police Service (KPS) on September 1999, as well as other Public Safety institutions, such were, amongst others, Kosovo Customs (KC), Kosovo Correctional Service (KCS) and the Department of Emergency Management (DEM), made possible for the United Nations Mission in Kosovo (UNMIK) and one of its pillars, the OSCE Mission in Kosovo, to bring together and train on the same standards of modern western liberal concepts of human rights, rule of law and democracy, the former Kosovo Liberation Army (KLA) warriors, former police and law enforcement officers of the former Yugoslav communist system, as well as young and unexperienced boys and girls, who entered in the system for the first time on their lives. This element was one of the most important ones that indicated in later development stages to upgrade the level of professionalism through a modern educational system in the field of public safety.

Kosovo has achieved a great success for a relatively short period of time to transform its education and training in the field of Public Safety. For about 7 years, from 2012 until 2019, there have been finalized successfully two EU-funded Twinning Projects, that established higher education in this field for the first time in its history, and further designed and gave shape to the vocational training, both of them according to the European Qualification Framework (EQF). Paralelly with these achievements of these two main capacity building pillars, it was set up also the quality assurance system according to the best European and American practices. Additionally, it was achieved an intense internationalization of the institution, formalizing cooperation with almost all the similar institutions of the Western Balkans: in Albania, Montenegro and North Macedonia, as well as those of the EU and the EEA, with countries such are Estonia, Finland, Germany, Norway and Poland.

All the aforementioned achievements have been reached only with close coordination, cooperation and harmonization amongst all the international partners of the Academy, such are: OSCE Mission in Kosovo, ICITAP Program in Kosovo, EU Office in Kosovo and many others. Amongst others, it shows from a perspective of a relatively small institution the orientation of the contry, Kosovo, towards the liberal democracies, represented mainly by the EU and EEA countries and the United States.

Therefore, this extraordinary trans-atlantic cooperation and coordination, together with the great wish and commitment of the locals, in this case in the field of Public Safety training and education, brough a great example worldwide how is possible that a small after-war country turned on to an example for its Western Balkan neighbours, but even wider.

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IPE and Law Enforcement: Understanding China’s Abroad Law Enforcement Activities through an Internatinal Political Economy Perspective

Oğuzhan Akgün¹

Western media and the academic literature have been increasingly discussing that the rise of criticisms towards the existing international order by the Global South countries has been attempted to be represented by the BRICS organization under the auspices of China especially following the 2008 financial crisis. Recent years have also shown a rise against international norms and principles constructed following the WWII. Those criticisms have also reflected themselves in the law enforcement sector. *China’s rising international law enforcement activities* have been regarded especially by the Western officials and media outlets as a fundamental threat to the liberal democracies and the concept of rule of law as its domestic law enforcement activities have been regarded as extremely repressive. Within the framework of an accelerating competition between the USA and China and the increasing abroad activities of China, analyzing the future of law enforcement has been an urgent and necessary endeavour. Thus, this paper aims to explore China’s impact on global law enforcement ecosystem through its strategies and implementations. It questions the motivations and mechanisms that China’s Communist Party uses to impact global law enforcement environment. It will analyze this by looking at the Ministry of Public Security’s (MPS) global activities abroad such as *bilateral police diplomacy*, *joint action plans*, *training for counterparts*, *the rise of Chinese overseas police outposts* and *the Lianyungang Forum* as an alternative law enforcement governance organization. For analyzing the scope of the Chinese effectiveness in the global law enforcement sector, the paper firstly discuss the Beijing’s and MPS’s vision for its role abroad. Then, it will demonstrate the types of MPS’ overseas activities. After showing the Beijing’s vision and types of activities, the paper will discuss its potential impact on the global law enforcement governance through a broad lense of international political economy. The paper argues that China has an increasing impact on global law enforcement sector even though its current is relatively limited. The paper also concludes that China’s abroad activities regarding law enforcement are mediated through political economic factors such as constructing an alternative law enforcement governance model with an alternative interpretation of the concept of “the rule of law”, prompted and legitimized by the individual countries’ urgent needs to secure their national territory and the Chinese strategies to secure their officials, citizens and investments in the host countries. Thus, it concludes that the MPS’ global efforts to implement the CCP’s directive to “actively build a law enforcement security cooperation system with Chinese characteristics” are conceptualized through Chinese political economy interests and strategies. Finally, it argues that by trying to provide alternative governance model and an alternative technological infrastructure for other states, China has the ability to impact the law enforcement practices globally towards a direction different from liberal democracies experiences and practices.

Keywords: global law enforcement, China, MPS, competition over law enforcement principles

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I. Introduction

The literature on the rise of China has been accelerating in the last two decades.² One side of the literature has focused its attention on the political rise of China as the influence of political organizations such as the Shanghai Cooperation Organization and the BRICS have been seen as increasing in global politics. The other side of the literature has considered the economic expansion of China based on the increasing global investments all around the world and the huge scales of manufacturing in China. Regarding the discussions of the rise of China's political and economic engagement and importance, the literature on the US-China competition has also accelerated in the last decade especially following the 2008 financial crisis. While neo-realist scholars have defined the US-China competition as inevitably leading to the harsh confrontations between the two powers³, liberals have argued that the accelerating confrontations will be harmful for the both sides.⁴

As a part of the discussion of the US-China competition, Western media outlets and the academic literature have been increasingly discussing that the rise of criticisms towards the existing international order by the Global South countries has been attempted to be represented by the BRICS organization under the auspices of China especially following the 2008 financial crisis. Recent years have also shown a rising criticisms against international norms and principles constructed following the WWII. According to the Western media coverage, those criticisms towards the established **organizational bodies have also reflected themselves in the global law enforcement sector**. Within this scope, international media coverage has been increasingly interested in the digital surveillance technologies implemented in China and exported into other countries by China.

Given the US-China competition discussions and the rise of China on the global scale, it has been important to understand how China's influence on the global law enforcement ecosystem reflects itself. Thus, the purpose of this article is to understand and analyze the impact of China on global law enforcement ecosystem. In order to analyze its impact, the article firstly discusses the China's vision regarding the security and law enforcement. Secondly, the article will attempt showing the

² Graham Alison, *Destined for war: Can America and China escape Thucydides's Trap?*, Houghton Mifflin, (2017).; Cliff Kupchan, 'US-China: The Cool War', *Eurasia Live*, September 4, 2019, accessed May 1, 2023, <https://www.eurasiagroup.net/live-post/us-china-cool-war>; Andrew A. Michta, 'Bipolarity Is Back', *The American Interest*, January 17, 2020, accessed May 5, 2023, <https://www.the-american-interest.com/2020/01/17/bipolarity-is-back/>; Richard Maher, 'Bipolarity and the Future of US-China Relations', *Political Science Quarterly* 133(3), (2018), pp. 497-525; Lin Linim and Wang Xuan, 'The US and China: A New Bipolar World', *Contemporary International Relations* 30(1), (2020), pp. 1-8; 阎学通 [Yan Xuetong], '2019开启了世界两极格局' ['2019 opened the bipolar world'], *现代国际关系* [Contemporary International Relations] (1), (2020), pp. 6-8.; Robert D. Kaplan, 'A New Cold War Has Begun', *Foreign Policy*, January 7, 2019, accessed July 1, 2023, <https://foreignpolicy.com/2019/01/07/a-new-cold-war-has-begun/>; Lawrence J. Haas, 'US must prepare for cold war with China', *The Hill*, March 27, 2021, accessed July 1, 2023, <https://thehill.com/opinion/international/545215-us-must-prepare-for-cold-war-with-china>; Alan Dupont, 'The US-China Cold War Has Already Started', *The Diplomat*, July 8, 2020, accessed July 1, 2023, <https://thediplomat.com/2020/07/the-US-China-cold-war-has-already-started/>; Michael Lind, 'Cold War II', *National Review*, May 10, 2018, accessed May 1, 2021, <https://www.nationalreview.com/magazine/2018/05/28/US-China-relations-cold-war-ii/>; Aaron L. Friedberg, *A Contest for Supremacy: U.S., China, and a Struggle for Mastery in Asia* (New York: Norton, 2012), p. 1

³ John Mearsheimer, *The Tragedy of Great Power Politics* (New York: W. W. Norton & Company, 2014).

⁴ G. John Ikenberry, *Liberal Leviathan: The Origins, Crisis, and Transformation of the American World Order* (Princeton: Princeton University Press, 2012), p. 9.

mechanisms used by the Ministry of Public Security being under the auspices of the China Communist Party. Then, in the following section, the article will attempt contextualizing China's vision and mechanisms through an international political economy (IPE) perspective. This perspective will help understand the motivations, requirements and strategies for the Chinese leadership with a combined approach of the national and international scale of political economy.

II. China's Security Vision

China's global law enforcement vision is a part of its broader national security vision, which was conceptualized in 2014 by the concept of "Comprehensive National Security".⁵ With the introduction of this conceptualization, Chinese decision makers have demonstrated their approaches to the national security issue from more comprehensive perspective combining sovereignty issues and development interests within the same framework of national, regional and international scales.⁶ In such a comprehensive understanding of security, the Chinese Communist Party (CCP) regards every issues encompassing traditional areas such as political security, territorial security, and military security, to new policy areas such as cultural security, scientific security and the security of China's overseas interests a matter of national security.⁷

As the first and primary component of the China's vision regarding the national security and global law enforcement, China has a clear understanding of increasing its influence globally in terms of global security and law enforcement processes. For this purpose, China has aimed at developing enhanced relationships with other states by providing a law enforcement infrastructure ranging from training, legal procedure and technology. Also it has aimed at the export of the law enforcement mechanisms that have been in the use for decades within China towards other countries through bilateral agreements, joint patrol cooperations and overseas service or police stations. Within the scope of comprehensive national security conceptualization, the issue of extraterritorial application of Chinese laws is a prominent subject for Chinese leadership. As Minister of Justice Fu Zhenghua has expressed in 2020, China gives importance to the creation of an international system for the extraterritorial application of Chinese laws.⁸ This approach includes an understanding of improving the implementation of international standards and procedures for the extraterritorial application of existing laws and strengthening the judicial practice of law enforcement in foreign countries. According to him, this will help China to enhance its international influence in terms of judicial practice.

Secondly, China has a clear strategy of the creation of an alternative law enforcement ecosystem and value system for the processing and implementation in the global law enforcement ecosystem. Based on the threat evaluations by the Chinese leadership and its "Comprehensive National Security" vision, Chinese leadership aims at advancing new norms for global security governance.⁹ In this regard, China has three main strategies for this objective. First of all, it actively participates into the existing institutional global organizations such as UNPOL and INTERPOL in order to have

⁵ Helena Legarda, 'China's new international paradigm: security first', <https://merics.org/en/chinas-new-international-paradigm-security-first>

⁶ Katja Drinhausen and Helena Legarda, 'China's Anti-Foreign Sanctions Law: A warning to the world', <https://merics.org/de/kommentar/chinas-anti-foreign-sanctions-law-warning-world>

⁷ Ibid.

⁸ Zhang Yi, 'Extraterritorial application of Chinese laws to be strengthened', <http://www.chinadaily.com.cn/a/202001/22/WS5e27f2b9a310128217272ce3.html>

⁹ Lindsey W. Ford, 'Extending the long arm of the law: China's international law enforcement drive', *Brookings*, 2021, <https://www.brookings.edu/articles/extending-the-long-arm-of-the-law-chinas-international-law-enforcement-drive/>

an international presence to express its own principles giving an emphasis on the sovereignty rights of the nation-states and opening room for more robust internal security practices. Secondly, China uses international policy exchange and training activities for the imposition of its own values and principles into the counterpart countries. Thirdly, China has been attempting to create an alternative international law enforcement institutional structure, demonstrating itself in *the Lianyungang Forum*.

The Keynote Speech of Xi Jinping at the opening ceremony of the 86th Interpol General Assembly held in Beijing¹⁰ has shown important arguments by the Chinese leadership for making reforms in the international security governance towards a more systemized, efficient and scientific system of "social management". This speech has sparked criticisms towards China by the democratic states. China has discontent with the concepts of the established international liberal democratic order such as individual rights, limits to state authority and the restricting and binding international law.¹¹ Thus, values of the international liberal order such as the rule of law and the protection of human rights are reevaluated by the Chinese leaders in order to construct alternative global governance in security issues.¹² In the version of Chinese vision, the supreme authority of the state has the legitimacy and the absolute sovereignty over its political and economic policies and strategies in a way which is unrestricted by international sanctioning or monitoring.¹³ According to Jordan Link, the CCP gives its own definitions for the internationally established norms such as the rule of law and terrorism.¹⁴ Regarding the rule of law, Huo Zhengxin, a law professor at the China University of Political Science and Law argues that the Western states have been frequently interfering the internal affairs of China through unilateral sanctions and long-arm jurisdictions. As a response to this interference by "law", Zhengxin argues that the spear of the rule of law needs to be accelerated.¹⁵ Furthermore, China has an active engagement in the norm-creating activities regarding the international technology standards. For this purpose, China has an active engagement at the the UN's International Telecommunications Union (ITU) and other international organizations regarding technology standards-setting issues.¹⁶ In this regard, specifically China has several submissions to the ITU for international standards in surveillance technology since 2016.¹⁷ Jordan Link also argues that Chinese global norm breaking behaviors have the potential to give encouragement for the authoritarian regimes¹⁸ since the expansion of the China's vision into reshaping the global governance norms provides opportunities for governments to use illiberal practices. According to Link, Chinese leadership has a different domestic legal understading

¹⁰ Xi Jinping Attends Opening Ceremony of the 86th Interpol General Assembly and Delivers a Keynote Speech September 26, 2017, http://md.china-embassy.gov.cn/eng/zgyw/201709/t20170928_2617258.htm.

¹¹ Melanie Hart and Blaine Johnson, "Mapping China's Global Governance Ambitions" (Washington: Center for American Progress, 2019), available at <https://www.americanprogress.org/article/mapping-chinas-global-governance-ambitions/>

¹² Jessica Chen Weiss, "A World Safe for Autocracy?", *Foreign Affairs*, July/August 2019, available at <https://www.foreignaffairs.com/articles/china/2019-06-11/world-safe-autocracy>

¹³ Freedom House, "Policy Recommendations: Transnational Repression," available at <https://freedomhouse.org/policy-recommendations/transnational-repression>.

¹⁴ Jordan Link, 'The Expanding International Reach of China's Police', *Center For American Progress*, October 17, 2022, <https://www.americanprogress.org/article/the-expanding-international-reach-of-chinas-police/>

¹⁵ Chen Qingqing and Xing Xiaojing, 'China passes its first foreign relations law in key step to enrich legal toolbox against Western hegemony', *Global Times*, June 28, 2023, <https://www.globaltimes.cn/page/202306/1293344.shtml>.

¹⁶ Sheena Chestnut Greitens, 'Dealing with Demand for China's Global Surveillance Exports', *Brookings*, April 2020, <https://www.brookings.edu/articles/dealing-with-demand-for-chinas-global-surveillance-exports/>.

¹⁷ Anna Gross and Madhumita Murgia, "China Shows its Dominance in Surveillance Technology," *Financial Times*, December 26, 2019, <https://www.ft.com/content/b34d8ff8-21b4-11ea-92da-f0c92e957a96>.

¹⁸ Jordan Link, 'The Expanding International Reach of China's Police'.

regarding the national security vis-a-vis the liberal democracies and a different interpretation of the term "rule of law" to mean the rule of law, being a political tool for the Chinese leadership in order to control the Chinese society in a way that is excluded from the accountability of the legal framework.

The third component of the China's global security and law enforcement vision is the protection of Chinese economic investments globally. This factor has increased in importance alongside the increasing activities of China's companies and citizens in foreign countries. For a specific concern for the Chinese leadership, the Belt and Road Initiative (BRI) has led to new security challenges for the protection and maintenance of the investments. In order to secure China's investments along the BRI, Chinese leadership has a strategy of bolstering partner states' own capacity for securing their internal territories. Within this scope, China provides technological infrastructure and know-how to the partner states reflecting itself in the concept of "safe-city technologies" as a part of its intention to establish a multilateral law enforcement cooperation along the investment routes. Since 2012 when Xi Jinping came to power, the international influence of the Ministry of Public Security has increased alongside the grand vision of national security which showed itself in the "comprehensive national security" conceptualization in 2015 and the Global Security Initiative launched in 2022 its several international activities.¹⁹ While China has an enormous amount of know-how regarding digital surveillance technologies thus giving it an important power to export its technologies to other states, the export of its surveillance know-how should be evaluated as a part of its global security vision.

III. Mechanisms of China's Global Law Enforcement Vision

Within the scope of the "comprehensive national security" approach announced by the Chinese leadership, **the Chinese leadership, and the Ministry of Public Security (MPS)** as the agent for activities, have been using **several mechanisms** for the realization of its vision. Studies have mostly categorized these mechanisms through the number of partners such as unilateral, bilateral and multilateral, however this article adopts **a subject-based approach** to the mechanisms used by China in order to show the relative importance of all mechanisms. First of all, China uses bilateral and multilateral law enforcement cooperation agreements in order to increase its influence and finding solutions to the challenges on the ground for decades. These have included cooperation agreements, extradition treaties, bilateral meetings and joint patrol activities. Secondly, China uses law enforcement trainings in accordance with its grand vision and makes several investments in this direction such as the establishment of new subject-based police academies and the increasing capacity of the police academies for training foreign law enforcement officials. Thirdly, the export of the Chinese domestic security technologies has been an important part of the China's grand vision. The last two important mechanisms are respectively the approach to use the existing international institutions such as UNPOL and INTERPOL for its objectives and intentions and creating new global institutions such as *Lianyungang Forum* for the purpose of creating a law enforcement hub in order to promote the grand security vision with Chinese characteristics.

¹⁹ Tao Xu and Nan Yang, "Chinese Policing: Its History from a Legal Perspective", in Monica De Boer (dir.), *Comparative Policing from a Legal Perspective*, Northampton (USA), Research Handbooks in Comparative Law, 2018, 363-379.

A Law Enforcement Cooperation Agreements

Under Xi Jinping administration, international law enforcement cooperation has become a key concern as the movements of China's interests and citizens have spreaded to the international realm. The Ministry of Public Security has become the important institutional agency of this new international mandate of the China's global security vision. Public Security International Cooperation Work Conference held in China on February 2017 emphasized the "internationalization of public security work" and the necessity for the creation of "actively build a law enforcement security cooperation system with Chinese characteristics."²⁰ China's cooperation agreements regarding the international law enforcement have increased over the past ten years. The content of these agreements were intelligence sharing, judicial coeoperation and joint police operations.²¹ A report publicized in 2017 by the Mercator Institute for China Studies showed the spread of the Chinese law enforcement agreements. According to this report, the number of extradition treaties with other states has doubled under the Xi administration. This shows the importance given to the increasing capacity of the international reach of the Chinese national security agencies by the Chinese leadership.²² According to the MERICS report, China has extradition treaties with 9 countries from the European Union such as France, Italy, Spain, Portugal, Romania, Bulgaria, Lithuania, Hungary, Greece.²³ Signing of the law enforcement cooperation agreement between China and Solomon Islands²⁴. Regarding the content of the agreement, a joint statement well shows the focus of the Chinese leader Xi Jinping on the capacity building of the Solomon Islands' law enforcement sector.²⁵ Also, China has extended its agreement span towards the Europe. The readmission agreement signed with Switzerland in 2015 is a sign of the dedication of the Chinese leadership to increase its international reach and grip on its own citizens and dissidents over the globe.²⁶

From 1997 to 2021, senior MPS officials held 114 bilateral meetings with foreign counterparts. Most of the meetings has been held under the Xi administration.²⁷ Following the Xi presidency, the term of stability maintenance as a topic of the MPS bilateral security meetings has doubled, showing the mutual understanding of the importance given to maintaining political and social stability.²⁸ According to the CAP database, the MPS has signed 51 agreements with 31 different foreign governments. These formal agreement sinclude protocols of cooperation, cooperation agreements, memorandums of cooperation, memorandums of understanding, cooperation documents and letters of intent for cooperation.

China has concluded bilateral agreements with Croatia, Serbia and Italy in order to conduct extraterritorial joint security patrols for the purpose of protectig Chinese tourists. As a result of

²⁰ Lindsey W. Ford, 'Extending the long arm of the law: China's international law enforcement drive'.

²¹ Ibid.

²² "China concludes 59 extradition treaties with foreign nations", Global Times, available at <https://www.globaltimes.cn/content/1204670.shtml>

²³ Thomas Eder, Bertram Lang, Moritz Rudolf, "MERICS China Monitor, China's Global Law Enforcement Drive", Mercator Institute for China Studies, 2017.

²⁴ Riyaz ul Khaliq, "Law enforcement cooperation promotes stability in Solomon Islands: China", available at <https://www.aa.com.tr/en/asia-pacific/law-enforcement-cooperation-promotes-stability-in-solomon-islands-china/2943805>

²⁵ Damien Cave, "China and Solomon Islands Draft Secret Security Pact, Raising Alarm inthe Pacific," The New York Times, March 24, 2022.

²⁶ Safeguard Defenders, "Lies and spies – Switzerland's secret deal with Chinese police, December 9, 2020, available at <https://safeguarddefenders.com/en/blog/lies-and-spies-switzerland-s-secret-deal-chinese-police>.

²⁷ Jordan Link, "The Expanding International Reach of China's Police", Center For American Progress, 2022.

²⁸ Ibid.

these bilateral agreements, China has conducted joint patrols with these three countries' police forces. In addition to the bilateral agreements and activities, China has been conducting multilateral patrols along the Mekong Rivers since 2011 under the "China-Laos-Myanmar-Thailand Mekong River Joint Patrol Law Enforcement Operation." The Western media and state officials have been increasingly accusing China of operating its own illegal police stations.^{29 30} According to the Madrid-based NGO 'Safeguard Defenders'³¹, China has at least 54 undeclared and extraterritorial police stations in more than 30 countries. The report released by the Safeguard Defenders under the title of "110 Overseas – Chinese Transnational Policing Gone Wild" argues that those stations operate under the guise of providing diplomatic and consular services.³² Most of the countries are European Union members such as Ireland, Germany and the Netherlands. Following the report by Safeguard Defenders, several countries in the West such as Canada, the United States, the Netherlands and Germany have started investigations regarding the examination of the accusations in the report.³³ Also, after the report, accusing China of operating illegal police service stations all around the world, the ministry of interior in Italy stopped its joint patrol activities with Chinese police officers in Rome, Florence, Naples and Milan.³⁴ These joint patrols had continued between 2016 and 2019 in Italy and they were suspended at the beginning of the pandemic in 2019. However, Serbian and Croatian officials have not accepted the accusations towards the China's illegal service activities through bilateral cooperations with them. They argued that the joint police patrols with Chinese police officers have no purpose other than the increasing the protection and communicational capacity of the Chinese tourists in both countries.³⁵ In this regard, "Safe Tourist Destinations" project between Chinese and Croatian police has been operating for a month during the summer season since 2018.³⁶

B Law Enforcement Training

Law enforcement trainings have been one of the important mechanisms of the China's global security vision. China has intensely invested in the law enforcement training centers for giving courses to foreign law enforcement officials. These trainings and courses have been operated under the title of capacity building of the recipient country with a special focus on the stability and maintenance. The establishment of a new China-Association of Southeast Asian Nations(ASEAN)

²⁹ Jacob Gu, "China Warns Its Citizens on 'Entrapment' by US Law Enforcement", Bloomberg, 2023, available at <https://www.bloomberg.com/news/articles/2023-07-10/china-warns-its-citizens-on-entrapment-by-us-law-enforcement?embedded-checkout=true>

³⁰ Nina Dos Santos, "China operating over 100 police stations across the world with the help of some host nations, report claims", CNN, 2022, available at <https://edition.cnn.com/2022/12/04/world/china-overseas-police-stations-intl-cmd/index.html>

³¹ Safeguard Defenders, "230,000 Chinese 'persuaded to return' from abroad, China to establish Extraterritoriality", available at <https://safeguarddefenders.com/en/blog/230000-policing-expands>

³² Oidtmann, Raphael: *Foreign Agents, Diplomatic Skirmishes and the Law on Diplomatic and Consular Relations: Extraterritorial Chinese Police Forces on European Soil*, *VerfBlog*, 2022/11/02, <https://verfassungsblog.de/chinese-police-stations/>, DOI: 10.17176/20221102-215629-0. <https://verfassungsblog.de/chinese-police-stations/>

³³ Italy stops joint police patrols with China - interior minister, Reuters, available at <https://www.reuters.com/world/italy-stops-joint-police-patrols-with-china-interior-minister-2022-12-19/>

³⁴ "Italy Stops Joint Police Patrols With China After Reports of Covert Overseas", available at <https://irvinejournal.com/World/6004>

³⁵ Sasa Dragojlo, "Serbia, Croatia, Deny Allowing Chinese Police Coercive Powers", available at <https://balkaninsight.com/2022/12/05/serbia-croatia-deny-allowing-chinese-police-coercive-powers/>

³⁶ "Joint Chinese-Croatian police patrol welcomed by tourists, locals", English News, available at <https://english.news.cn/20230811/9f415d15a43e453597ac576186c4ef1d/c.html>

Law Enforcement Academy in 2016 by the Yunnan Police College in Kunming and the arrangement of annual training course for African law enforcement officials in eastern Shandong province could be seen as important examples of the training investment by China. China's training programs have also included some specific courses such as railway security training.³⁷

According to the data compiled by Center for American Progress, in the last two decades, the MPS has given 77 law enforcement training and courses to some countries in Asia (the largest share with almost 40 percent), Africa (holding second largest share with almost 35 percent), Latin America and the Caribbean, Oceania, Europe, the North America (only Mexico) and the Middle East (only Qatar).³⁸ The trainings are equipped with practical content with the corresponding state's urgent needs. Those trainings and courses were on issues such as stability maintenance, an euphemism for the control of protests and other forms of dissident activities and the active use of law enforcement technologies. Cyber and technological training materials have been increasing in amount for the courses given to the foreign countries' law enforcement officials by the China's MPS. According to CAP database, 12 countries such as Argentina, Armenia, Cambodia, Djibouti, Fiji, Indonesia, Malaysia, Panama, the Philippines, Tajikistan, Tunisia, and Uzbekistan have received 15 training sessions related to cyber issues since 2017.

C The Export of the Security Technologies

Chinese security bureaucracy has gathered several amounts of experiences in the field of the use of domestic security technologies for surveillance and forensic purposes. For the development of security technologies, China has several globally well-known technology companies such as Huawei, Meiya Pico, ZTE, Dahua and Hikvision. In this regard, Huawei plays an active role in China's global law enforcement activities. According to Sheena Chestnut Greitens,³⁹ Chinese surveillance technologies for policing and public security have been received in at least 80 countries all over the world. These surveillance technologies are within the scope of Safe City Solutions Projects developed by Huawei which provide functions such as collecting, integrating and analyzing data from a wide range of sources. Also, Meiya Pico gives technical training to police officers in more than 30 countries as well as its importance in the construction of "digital forensic laboratories" as part of China's BRI initiatives.⁴⁰

D The Engagement with the Existing International Law Enforcement Organizations

As an active rule-breaking activities of the China, International Criminal Police Organization (INTERPOL) provides a proper structure for China to express the inadequacy of the existing rules and institutional framework and the proposal for new norms and principles as alternatives for the inadequate current one. In addition to that, China actively engages with the existing Interpol institutional framework such as the Red Notice System in order to seize the dissidents and pursue its own interests. As a way of expanding its influence within INTERPOL, China has benefited the funding mechanisms of the organization. Especially following the election of Meng Hongwei as the president of the INTERPOL in 2016, China has increased its financial contribution to

³⁷ Jin Zheng and Christine Lagat, "Kenyan police to visit China for railway security training", Xinhuanet, available at http://www.xinhuanet.com/english/2018-05/24/c_137201302.htm

³⁸ Jordan Link, 'The Expanding International Reach of China's Police'.

³⁹ Sheeba Chestnut Greitens, "Dealing With Demand For China's Global Surveillance Exports", Brookings, April 2020.

⁴⁰ Danielle Cave, Fergus Ryan and Vicky Xiuzhong Xu, "Mapping More of China's Tech Giants: AI and Surveillance", Australian Strategic Policy Institute, 2019, available at <https://www.aspi.org.au/report/mapping-more-chinas-tech-giants>

INTERPOL projects. The annual financial participation of China has increased from almost 2 million Euro in 2017 towards almost 4 million Euro in 2021.⁴¹ Since 2000s, the China's active engagement with the UN peacekeeping operations has been on the rise. Annika S. Hansen has argued that China has been one of the most supportive states in the United Nations Police (UNPOL) activities.⁴² In the last two decades, nearly 3000 Chinese police officers have participated into the peacekeeping operations.⁴³

E The Lianyungang Forum

The Lianyungang Forum is a Beijing-led Global Public Security Cooperation Forum for the purpose of increasing cooperation among the law enforcement agencies globally. Although it was firstly designed for the coordination of the security-related issues along the BRI routes, its scope has been expanded into being a global security forum. The Lianyungang Forum was established and held firstly in 2015 by the Ministry of Public Security and The Jiangsu Security Association is the organizing body for the Lianyungang Forum.

Since its establishment, Chinese officials have been using the Forum in order to criticize the existing institutional framework and its principal procedures and propose an alternative way of global law enforcement cooperation. In this regard, in April 2022, Xi proposed the Global Security Initiative, calling on all countries to adapt to the profoundly changing international landscape in the spirit of solidarity, and address the complex and intertwined security challenges with a win-win solution.⁴⁴ Furthermore, in the last Lianyungang Forum held on 17-19 September 2023, the Chairman of the China Association for Friendship, Chen Zhimin described the existing global security governance as inadequate in dealing with the escalating geopolitical conflicts and global competition.

IV. Contextualizing China's Vision and Mechanisms through IPE

Looking at the China's leadership vision and mechanisms globally would not be enough in order to understand the impact of China on global law enforcement ecosystem since it will lack the perspective which will help understand the motivations, requirements, challenges of Chinese leadership and its counterparts. The article adopts the approach that the global activities regarding the law enforcement by China could be better understood through a political economy perspective. This perspective refers to the idea that both political economy strategies of the decision-makers and the domestic realities and necessities of the related country have cyclical and relational impact on the global activities of the state, considering the relative power and power capabilities of the state. In this regard, the article goes beyond a neorealist understanding when analyzing the Chinese activities specifically regarding the global law enforcement. Thus, the article adopts the approach that a political economy perspective provides more dynamic and relational understanding of the China's global law enforcement activities. While a neorealist approach would focus on that Chinese officials see a security requirements and the inevitable competition with the Western powers regarding the rise of its relative power capacities all around the world, political economy

⁴¹ Carine Pina, "China's International Police and Judicial Cooperation", IRSEM, 2023.

⁴² Annika S. Hansen, "Operationalizing Conflict Prevention - The Role of United Nations Police", Policy Briefing, Center for International Peace Operations, July 2019, p. 4.

⁴³ UNPOL, "In Focus: Beijing hosts Senior Police Officers Course", October 30, 2018.

⁴⁴ Cang Wei, "Cooperation called on for security", Chinadaily, available at <https://www.chinadaily.com.cn/a/202309/21/WS650b9205a310d2dce4bb6dd9.html>

perspective would also include the domestic political economy requirements as well as the international political economy dynamics into the analysis. In this regard, the article argues that China's political economy and the global IPE structure require Chinese decision-makers and also create several opportunities for China in order to be a pro-active designer of its own-defined security priorities. Based on the discussions of global competition of China with the Western powers and China's political economy requirements, Chinese decisions-makers have increasing motivations to actively get involved in the other countries law enforcement sectors. These motivations are mediated through China's own political economy requirements, structural global opportunities and global competition with the West.

For the motivations of the Chinese leadership in order to increase its influence on the global level in terms of the law enforcement activities, MERICS report provides three main factors. These are (1) the necessity to extend anti-corruption and counter-terrorism campaigns abroad to make them successful at home, (2) the growing exposure of Chinese citizens and investments to international crime and terrorism, and (3) the Chinese government's push for global governance participation and recognition as a 'responsible great power'. The necessity of being international for the implementation of the domestic policies such as anti-corruption campaigns has been one of the important drivers of the Chinese going global on law enforcement activities. In this regard, according to the Chinese leadership, the success of the international operations such as "Operation Fox Hunt" and "Operation Skynet" were regarded as being achieved only through an active engagement in international law enforcement cooperation. Also, as well argued by Thomas Eder, Bertram Lang, Moritz Rudolf, one of the reasons for the drives of the Chinese global law enforcement engagement goes hand-in-hand with the increasing global economic engagement of China's state, companies and citizens. The provision of physical protection for Chinese citizens and investments has been important especially following the Xi administration and the announcement of the BRI. Thus, security risks and challenges in foreign countries oblige Chinese officials to take precautions for the protection of its citizens and investments. In this regard, it is crucial to demonstrate that the way that China chooses in order to deal with these challenges and risks through law enforcement cooperation shows a sharp difference with the Western experiences which had focused its security relations through military forces. Also, China's focus on punitive and prosecutorial measures are in collision with the preventive perspective of the UN regarding the issues of terrorism, corruption and organized crime, having an approach to fight with political and socio-economic causes of these issues through transparency, strengthened institutions and empowerment of the civil society and local community. China's understanding of international cooperation on security issues focuses its attention as the agent of the process on and intergovernmental cooperation of the nation-states as a shift from the multi-stakeholder approach of the international community for the last four decades.⁴⁵ For the factor regarding being a responsible state, it is argued that the Chinese leadership needs to show itself as a responsible state to its own citizens and companies in order to show its power and interests to them and at the same time having legitimacy through the power of being a responsible state. Although all of these three factors counted in the MERICS report have important credibilities in order to understand the China's global law enforcement drive, here the article would add some other dimensions for better understanding the China's drive.

With the help of the contextualization of the IPE perspective, this section argues that China's global law enforcement vision and mechanisms are mediated through its own domestic political economic interests and requirements. China has its own way of governing and policy making vis-a-vis the

⁴⁵ Thomas Eder, Bertram Lang, Moritz Rudolf, "MERICS China Monitor, China's Global Law Enforcement Drive".

Western values and practices. It has its own political economic conditions and geographical and demographic realities. As the first dimension, China has an unemployment challenge. Chinese global investments are partially triggered by the solution of the unemployment problem domestically when we look at the numbers that Chinese workers are located into the global investments of Chinese companies. While considering the security challenges domestically and abroad, the Chinese leadership has a great amount of motivation to take into account the unemployment challenge of China and its potential short-term and long-term consequences for the regime. Thus, Chinese global law enforcement activities are not only triggered by the increasing influence in world politics vis-a-vis the Western powers, but also the Chinese leadership has a great concern and impulse to increase its international reach in its global law enforcement activities. As the second dimension, related to the above unemployment problem, China has a economic growth challenge. Given the accelerating competition and regionalization practices of the trade relations, China necessitates trade routes and activities being maintained globally. Feldstain suggests that the Chinese-sourced AI technology receiving states are likely to be signatories of the BRI. This demonstrates the importance given to the protection of the global investments. The idea and the struggle of protecting the investments are mediated through the growing challenge of the Chinese leadership and society. Also, the discussions regarding the shift in the growth model of China from a export-oriented model towards a more central point given to the increase of the domestic consumption help partially in order to explain the increase of the China's global law enforcement reach. In a growth model based on the idea of increasing the global purchasing power of the national currency and the rise of the domestic consumption through an import-approach from other countries, the protection of the transportation routes has the primary concern of the Chinese leadership.

As the third dimension, China has a one-party government, which is the Chinese Communist Party. Thus, it is highly sensitive to the democratic demands. It is a red-line for the Chinese leadership. It is partially for this reason that China focuses on economic relations with the counterpart countries and has no principal perspective regarding the political systems in other countries. As the fourth reality, regarding its political system, China has a global legitimacy challenge. The engagement through global law enforcement activities help it to legitimize its own way of policy-making. Thus, through its law enforcement mechanisms discussed earlier, Chinese leadership tries to legitimize its own domestic practices in international level. In this regard, capacity-building activities such as the establishment of domestic security technologies, law enforcement trainings and legal procedural engagements applied in other countries have a real impact on the ground for the counterpart countries. Also, it is likely to have an increasing impact for the construction of alternative norms in global law enforcement ecosystem. In this regard, Polyakova and Meserole argue that the China's motivations in order to export surveillance technologies are not restricted to security and economic concerns. It also aims at constructing political leverage against the West.

It is important here to demonstrate the motivations of the of the China's counterpart countries. Firstly, the Western-China (or BRICS) bipolarity or increasing multipolarity of the world politics create new political economic opportunities for the third countries. The rise of China's global power capacities offers alternative ways in the political economy decisions of the related countries. The process of the increasing influence of China regarding the global law enforcement activities also depends on the willingness and the pros-cons determinations of the related states. As discussed in the literature, there are three main policy strategies regarding taking positions against the USA-

China competition such as balancing strategy, bandwagoning strategy and hedging strategy.⁴⁶ Thus, the China's impact will be effected by these strategies. This can be exemplified by looking the distinguished decisions by Ital on one side and Croatia and Serbia on the other side regarding their responses towards the reports accusing China of operating overseas illegal police stations. Furthermore, these strategies are affected by the political economy and growth considerations of the decision makers as it can be shown in the example that countries along the BRI routes are more inclined towards the Chinese law enforcement drive. Secondly, the dimension of demands in adopting China's technology by the recipient side provides an important edge for understanding the impact of China's law enforcement drive. In itself, the demand dimension includes the political economic considerations of the recipient states, reflecting itself on the idea of the necessity of domestic security for attracting the domestic and international capitals for investments and political stability. It is the idea that this technology would help them solve the local security challenges which will help them economic development through attracting investment and political stability through public safety. In this regard, Chinese technology firms and state officials offer a crucial infrastructural and theoretical base for the recipient states.

V. Conclusion

China has been increasing its global influence in international economic activities as well as the international policital cooperation. This influence has sparked a huge discussions especially in the Western media as it is described as a fundamental challenge to the Western values and norms also the global order. Confronted with criticisms and accusations, the Chinese leadership defends itself sometimes by criticizing the inadequacy and inefficiency of the established global institutions and sometimes by highlighting the colonial and emperial Western background and global inequalities all around the world. Within this scope, it has been increasingly important to understand the reflections of these discussions into the global law enforcement ecocosystem. For this purpose, this article has discussed the China's vision, mechanisms and motivations regarding its global law enforcement drive in order to understand the impact of this drive. As a metholody for understanding the impact, the article has demonstrated that the inclusion of the IPE perspective into the discussions of the China's law enforcement drive would help better understand it as it gives the methodological equipments providing dimensions such as the considerations of domestic political and economic necessities and realities, strategies of China and the counterpart countries.

The article has provided a comprehensive perspective for analyzing the Chinese law enforcement activities and its current and future impact globally. After discussing the Chinese leadership vision and national securirty perspective especially in the last decade, the article has shown five main mechanisms that the CCP, through the Ministry of Public Security, has been using for increasing its influence in global law enforcement ecosystem. In the last section, the article has adopted an IPE perspective in analysis in order to include the political economic requirements and dynamics for both China and the countries whom China has been in relation to. This section can be regarded as an overview of this perspective and open to new discussions and improvements.

46 Jenn-Jaw Soong (2022): The Political Economy of Asian States and Their Development Strategies under USA-China Power Rivalry: Conducting Hedging Strategy on Triangular Relation and Operation, The Chinese Economy, DOI: 10.1080/10971475.2022.2136689

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Audit System in the Service of Municipal Safety

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Among the security challenges, the safety of a municipality plays a key role in shaping citizens' subjective perception of security. Local governments have a cardinal legal obligation to contribute to local security, but the extent to which municipalities fulfil this obligation varies. An audit system based on objective criteria has not been developed in the past for measuring and reviewing the performance of local governments in the area of law enforcement and municipal security. The development of an audit system based on recent research on local government law enforcement is intended to fill these gaps. This audit system will approach the issue from the point of view of the municipalities, setting out a set of criteria and aspects on which the municipalities have an influence. During a municipal safety audit, the municipal safety indexes on which the criteria and aspects are based are assessed to determine whether a municipality can be considered safe from a municipal perspective. This audit system is described in this paper.

Keywords: local governmental law enforcement, urban security, public area inspector, field guards, law enforcement cooperation, local security, rural security

I. Introduction

It is our belief, and as highlighted in his renowned study by Abraham Maslow, that

Safety is one of the most fundamental human needs, for it is safety that can serve as the foundation for the satisfaction of higher human needs.⁴

According to Géza Finszter, 'safety represents the protection of values created by society.'⁵ Alongside the concept of safety, one can also understand the concept of danger. Finszter describes it as

A state or life situation in which material and intellectual assets recognized as valuable by society are threatened. The damage can be the destruction of assets, their depreciation, or the loss of their value-enhancing ability.⁶

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⁴ Abraham Maslow: *Motivation And Personality: Motivation And Personality: Unlocking Your Inner Drive and Understanding Human Behavior.*(New York: Harper & Brothers, 1954)

⁵ Géza Finszter: *Rendészettan.* (Budapest: Dialóg Campus Kiadó. 2018.)

⁶ Ibid.

It's a natural endeavor for a society, state, individual, business, or even a local government to mitigate threatening dangers, thereby catering to local safety needs. The need to establish safety and avoid danger is so essential that it's considered a separate administrative branch, commonly referred to as law enforcement administration. For instance, our distinguished legal scholar, Zoltán Magyary, views law enforcement as a branch of public administration with jurisdiction extending into every sector of administration, aiming to ensure general peace, safety, and order. Law enforcement is a protective, preventive activity, in contrast to general administration which has positive tasks.⁷

It's worth noting the perspective of our contemporary legal expert, Lajos Szamel, who believes that law enforcement is

*a state activity aimed at preventing public order disturbances, inhibiting immediate disruptive behavior, and restoring disturbed order.*⁸

A key element of Lajos Szamel's concept of law enforcement is public order, which is distinct from the legal order. Every illegal act violates the legal order, but not necessarily the public order. It is the legislator's duty to extend the jurisdiction of law enforcement agencies to behaviors that violate public order, providing them with police protection.⁹

Following this brief, by no means exhaustive overview, it can be concluded that the concepts of safety, danger, and law enforcement are closely interconnected. Our legislators were aware that safety and public security are

*extremely complex, multifaceted activities, which cannot be expected solely from a single state-organized entity, namely the police.*¹⁰

Local governments, private security companies, civil organizations, and notably municipality police play roles in establishing safety and public security.¹¹ The main responsibility for establishing public security lies with the state-controlled police. Still, it's undeniable that local governments in Hungary also play a crucial role.¹² Their obligation to participate in ensuring local public security is defined in the Act CLXXXIX of 2011 on Local Governments of Hungary, section 13 (1) item 17.¹³ However, it remains a decision for the local government on how and with which means they contribute to this duty, as they have a wide array of tools at their disposal, from "soft" solutions such as financial and material support for strengthening local security through municipality policing, to "hard", requiring substantial professional expertise and financial

⁷ Zoltán Magyary, *Magyar Közigazgatás*. (Budapest: Királyi Magyar Egyetemi Nyomda, 1942.)

⁸ Lajos Szamel, *Jogállamiság és rendészet. Rendészeti Szemle*, no 3. (1992)

⁹ *Ibid.*

¹⁰ László Christián – Violetta Rottler: A biztonság megteremtésének új megközelítése: komplementer rendészet = New aspect of creating security: complementary law enforcement. In *Trendy rozvoja súkromnej bezpečnosti v krajinách V4*. Bratislava..

¹¹ László Christián: A helyi rendészeti együttműködés rendszere. *Iustum Aequum Salutare*, no 14. (2018)

¹² József Bacsárdi: Az önkormányzati rendészet külföldön, illetve perspektívái hazánkban. Online: [Bacsardi_Jozsef_dolgozatv\(1\).pdf \(ppke.hu\)](#) (ppke.hu) DOI: 10.15774/PPKE.JAK.2020.001

¹³ Act CLXXXIX of 2011 on Local Governments of Hungary. Online: *Mötv.* - 2011. évi CLXXXIX. törvény Magyarország helyi önkormányzatairól - Hatályos Jogszabályok Gyűjteménye (jogtar.hu)

commitment, actions like the operation and maintenance of a municipal law enforcement organization.

II. Municipal Safety (Municipal Law Enforcement)

A municipality can best ensure and strengthen local safety within the framework of its municipal law enforcement duties. While the concept of municipal law enforcement has been refined by legal scholars in recent times, it isn't explicitly defined in the Hungarian legal system. Broadly speaking, municipal law enforcement can be defined as the entirety of a municipality's actions, obligations, related operational possibilities, and boundaries concerning the local establishment of public safety.¹⁴ In a narrower sense, municipal law enforcement refers to locally established, municipally maintained organizations (commonly known as public area supervisors or rural patrol services in our country) that have more limited enforcement powers compared to the police. Clearly, municipal law enforcement primarily pertains to all the municipality's direct and indirect actions related to local public safety.

However, the question of a municipal's safety can't be examined solely from a public safety perspective. There are numerous municipal safety risk factors that threaten the safety of a municipality but aren't classified as public safety hazards. Examples include noise pollution, an inadequate number of public waste bins, or improperly labeled house numbers. These are all, without exception, municipal administrative matters that could pose indirect threats to the safety of a municipality.

Similarly to the definition of municipal law enforcement, the concept of municipal safety isn't precisely defined in the legal system, mainly due to the extremely heterogeneous nature of the dangers threatening municipal safety. Within the topic of municipal safety, municipal law enforcement is certainly well-positioned. However, due to the municipality's urban, rural operational duties defined in the Local Government Act, municipal safety is seen as a broader category, of which the municipality's activities in the field of public safety are just a subset. In summary, it's clear that municipal safety consists of activities that serve and guarantee the safe operation and functionality of a municipality.

It's undeniable that such an essential aspect of municipal safety as municipal law enforcement can be analyzed by reviewing various laws. However, an inevitable question arises: how can one comprehensively examine municipal safety? Is it even possible to identify parameters based on which one can objectively determine whether a municipality can be deemed safe? Pondering and formulating this question, we have attempted to examine the components of municipal safety.

III. National Laboratory for Security Technologies – Safe Municipalities Subproject¹⁵

Supported by the policy backing of the Ministry of Innovation and Technology¹⁶, the '*National Laboratory for Security Technologies*' (hereinafter: NLST) was established at the National University of Public Service. Between 2020 and 2021, the NLST undertook the task of forming a comprehensive framework for domestic security technological developments. Within the structure

¹⁴ József Boda: *Rendészettudományi szaklexikon*. Budapest: Dialóg Campus Kiadó, 2019.

¹⁵ József Bacsárdi, László Christián, Gábor Hermann, Zsolt Lippai, Zoltán Veress: Fejlesztések és fejlesztési víziók az önkormányzati rendészet területén Biztonságos Település alprojekt. *Magyar Rendészet*, no 2. (2022)

¹⁶ The agreement with the reference number GF/JSZF/872/1/2020 established between the National University of Public Service and the National Research, Development and Innovation Office.

of NLST, three distinct research and development subprojects were initiated, one of which is the "Safe Municipalities" subproject (hereinafter: SaMu subproject). The SaMu subproject's implementation involved partnerships with municipalities (sample municipalities), municipal experts, university educators and researchers, market participants, and other specialists.

The SaMu subproject established four specific goals as follows:

1. Creation of the 'Safe Municipality' title,
2. Development of the 'Municipality Safety Methodological Guide',
3. Development of the 'Citizen Interactive Reporting System',
4. Development of the 'Integrated Municipality Security System'.

Out of the four subproject goals, two are closely related to the purpose of this study: the formation of the 'Safe Municipality' title and the creation of the 'Municipality Safety Methodological Guide'. The 'Safe Municipality' title, as an intellectual property, is an accolade that can be awarded to municipalities through a competitive process. It's designed to recognize a municipality's role in establishing and supporting municipality safety. This accolade can be conferred by a designated and authorized organization, based on strict professional requirements and indicators, as stipulated in a forthcoming Model Document.

The 'Municipality Safety Methodological Guide' is defined as a freely accessible publication, aimed to provide expert assistance to those municipal governments that possess the political will and financial resources to enhance municipality safety but lack the necessary expertise to establish the required conditions. This serves a dual purpose: firstly, it allows municipalities to earn the "Safe Municipality" title by adhering to and fulfilling the standards specified in the "Municipality Safety Methodological Guide." Secondly, it ensures the availability of a set of criteria to guide municipal leaders in planning and organizing strategic decisions and developments to enhance safety. While the "Municipality Safety Methodological Guide" itself can be a valuable document, its implementation may benefit from expert support and monitoring.

Guidelines specified in the "Municipality Safety Methodological Guide" could help a municipal government ensure the execution of tasks related to municipality safety within the limits set by relevant legislation. Additionally, they can assist in some municipality safety tasks if actual execution lies within another organization's jurisdiction. If a municipality adequately addresses its responsibilities in municipality safety, it could potentially be recognized with the "Safe Municipality" title, post an audit. This circles back to the question posed in the previous subsection: how can one objectively assess, within an audit framework, whether a municipality genuinely meets its municipality safety obligations? Objectivity is paramount, and evaluations should be grounded in scientific and professional bases. An objective evaluation system is necessary for this purpose, and a "municipality safety standard" could best meet this criteria. This municipality safety standard could also form the basis for an entirely objective municipality safety audit. It's essential to note that an audit can only be conducted once a standard is registered.

The development of this standard would have been a partial outcome of the "Safe Municipality title" subproject goal. However, due to funding difficulties, the NLST could not continue its operations beyond April 30, 2022, and the opportunity to create the municipality safety standard within the project's framework was lost.

IV. Hungarian Society for Law Enforcement – Municipal Safety Division

After the dissolution of NLST, the former members of the NLST SaMu Subproject sought new structures to continue their initiatives. The realization of the ongoing projects was ultimately

facilitated under the Municipality Safety Division of the Hungarian Society for Law Enforcement, established by the National University of Public Service, in cooperation with the National Crime Prevention Council (NCPC). The National University of Public Service granted unrestricted, free access to the partial results achieved within the NLST SaMu Subproject framework, such as foundational research summaries, feasibility studies, branding handbooks, and more. The Municipal Safety Division set forth the following objectives:

1. Creation of a National Standard outlining the technical, professional, and procedural content for instituting municipality safety at the local government level,
2. Formulating the professional criteria necessary for securing the ‘Safe Municipality’ title through application,
3. Establishment and up-to-date maintenance of a Comprehensive Municipal Safety Methodology Guide,
4. Offering municipal safety audit services,
5. Providing municipal safety management expert assistance to local municipalities,
6. Engaging in research and development with a focus on municipal safety,
7. Engaging in partnership and ‘strategic’ collaborations concerning municipal safety-related legislation processes, such as gathering issues related to legal interpretation, initiating changes in laws, and participating in professional and societal discussions during the legislative process.

The primary goal of the Municipal Safety Division was the formulation of a municipal safety standard as a National Standard. Additionally, as its third objective, it aimed to conduct municipality safety audit operations. The NCPC) backs the enactment of the municipality safety standard, noting its alignment with many elements of the current and upcoming National Crime Prevention Strategy.¹⁷

V. Municipal Safety Standard as Basic for Audit Activities

The concept of "standard" is defined in Act XXVIII of 1995 on national standardization, Section 4, as follows:¹⁸

A standard is a technical (technical) document, created or approved by a recognized organization, accepted by consensus, relating to activities or their results, which contains general and repeatedly applicable rules, guidelines, or characteristics, ensuring that under the given conditions, the organizing effect is most favorable.

The concept of standardization, according to Point 1 of Annex 1 of Act XXVIII of 1995, is defined as an activity that

provides general and repeatedly applicable solutions to existing or anticipated problems with the aim of ensuring the organizing effect under the given conditions is most favorable.

¹⁷ Government Regulation No. 1291/2023. (VII. 19.) on the National Crime Prevention Strategy (2024–2034) and the Action Plan for the National Crime Prevention Strategy for the years 2024–2025

¹⁸ Act XXVIII of 1995 on National Standardization Online: 1995. évi XXVIII. törvény a nemzeti szabványosításról - Hatályos Jogszabályok Gyűjteménye (jogtar.hu)

Standardization can provide an answer to the question or problem of how to determine, based on objective indicators, whether a municipality is safe. The emerging municipal safety standard should function as a system of quality management (quality assurance) criteria describing processes and defining evaluation aspects. This aligns best with the ISO 9001 standard environment.¹⁹ However, given that there is currently no quality management standard in the ISO standard family that defines municipal safety tasks and processes, only the creation of a National Standard can be considered for the realization of this concept.

The development of the municipal safety standard is a multi-stage process that can be organized as follows:

1. Identification of municipal safety risks,
2. Preparation of the municipal safety risk assessment,
3. Determination of tasks and processes for the most efficient management of municipal safety risks based on the risk assessment,
4. Codification of the standard and preparation of standard documentation.

After the standard codification, the documentation can be submitted to the Hungarian Standards Institution. Only after its validation by the HSI and subsequent publication in the Standards Gazette will the possibility to conduct municipality safety audit activities open.

Within the municipality safety standard, it is necessary to define processes that describe the most efficient methods for managing municipality safety problems (risks) that fall within the competency of local governments. So far, we have identified and formulated a total of 43 municipality safety risks that typically influence the general state of public safety in municipalities, affect the subjective sense of safety of the population, and for which local governments have the opportunity, right, or even obligation to mitigate, thus having a responsibility and duty.

The 43 municipal safety risks intended to be managed by the municipal safety standard were categorized. Risk assessment would be carried out according to the risk map divided into four clusters as follows:

1. Crime and Law Enforcement Issues:

- Absence of public safety and crime prevention strategy,
- Burglary/theft in local government institutions,
- Illegal parking,
- Protection of municipal property (theft/vandalism),
- Unauthorized public space usage,
- Public space contamination (public urination),
- Homeless issue,
- Begging,
- Illegal advertisements,
- Agricultural product/tree theft,
- Illegal fishing/poaching,
- Poaching,
- Lack of civil guard.

These issues typically address social, economic, or environmental concerns that influence public order and safety and require the involvement of the police, local government, or other law enforcement agencies.

¹⁹ Hungarian Standards Institution > Standardization > System Standards > ISO 9001 Quality Management Online: www.mszt.hu

2. Public Space, Environmental, and Infrastructural Issues:

- Public cleanliness, illegal waste dumping,
- Accident-prone local roads, potholes,
- Inoperative vehicles,
- Open burning, air pollution,
- Lack of adequate public trash bins,
- Maintenance of property-front public space/green areas,
- Unauthorized road maintenance activities,
- Heavy vehicle access issues,
- Inappropriate use of water surfaces,
- Transit vehicle traffic,
- Mud tracking,
- Lack of appropriate road signs and markings,
- Absence of proper house numbering,
- Neglect of tree maintenance.

This set of issues encompasses challenges and anomalies related to the condition, use, and upkeep of public and environmental spaces that negatively affect environmental quality, traffic safety, and the quality of life in the community.

3. Community and Social Issues:

- Inadequate management of disaster risk and protection administration,
- Noise issues,
- Public alcohol consumption,
- Violation of smoking regulations,
- Non-compliance with pet regulations (e.g., walking a dog without a leash/muzzle),
- Stray animals,
- Dog feces,
- Lack of municipality safety coordination,
- Lack of municipality involvement,
- Lack of collaboration,
- Absence of proper motivational tools.

Community and social issues address challenges and anomalies resulting from breaches in societal coexistence and community standards, as well as shortcomings in institutional and community cooperation, affecting the safety, tranquility, and quality of life of the community.

4. Events and Cultural Activities:

- Events (national, local government celebrations, music and dance events),
- Tourism (periodic increased demand),
- Other cultural and sports programs (e.g., religious events, minority events, marathons, etc.).

This group addresses the organized forms of social, cultural, and sporting activities that periodically or regularly appear in a community or area. They manifest in various thematic, celebratory, or recreational events, often resulting in periodic increased demand on local infrastructure and shifts in audience composition.

For the preparation of the community safety standard, beyond the overview of community safety risks, criteria for risk assessment were also developed. By applying this criterion system, municipal actions can be scaled from 0 to 3 points, indicating the extent to which a particular local government is able to manage, mitigate, or even eliminate community safety risks prioritized in its jurisdiction.

The evaluation criteria necessary for establishing the community safety standard are well illustrated by the following example, which presents a given local government's problem management related to "illegal waste dumping" and indexes its quality:

Table 1: Illegal Waste Dumping Index

Illegal Waste Dumping			Points
Effectiveness Criteria			
1. Regulation and Accountability:			
What regulations are in effect in the municipality concerning illegal waste dumping, and what sanctions do they contain in case of violations? How effective is the enforcement and compliance with these regulations?			
None (0 points)	There are no effective regulations on illegal waste dumping, or there is no observable effort to enforce existing rules.	Local regulation addressing illegal waste dumping is missing, or if there are such rules, there's no observable effort to enforce and monitor compliance. This can result in serious waste disposal issues, negatively impacting the environment and the quality of life for the community.	
1. Low (1 point)	Regulations exist, but their enforcement is weak, and the sanctions are either not strict enough or not applied. Rules against illegal waste dumping exist, but their implementation and enforcement are weak.	Additionally, penalties aren't strict enough or, if they exist, aren't consistently applied. As a result, residents don't perceive significant consequences for engaging in illegal waste dumping.	
2. Moderate (2 points)	Appropriate regulations are in place, and their enforcement is somewhat effective. Sanctions are strict but aren't applied in all cases.	Regulations are generally adequate and are partially enforced effectively. Sanctions are strict but aren't applied in every case. This scenario may suggest that rule compliance might depend on various factors, such as specific cases or the individuals involved.	
3. High (3 points)	There's outstanding effectiveness in regulation and accountability. Compliance with the rules is continuously monitored, and sanctions are strict and consistently applied.	The established regulations are adequate, and with their application, accountability is exceptionally effective. Compliance with the rules is constantly under scrutiny, and the sanctions are strict and consistently applied. This scenario usually results in the best outcomes in combating illegal waste dumping.	
2. Waste Management Infrastructure:			
How is the municipality equipped in terms of waste management infrastructure? How accessible are the landfills, recycling centers, and other waste management facilities to the public?			
0. None (0 points)	There is no waste management infrastructure or it's inaccessible to the public.	The municipality lacks facilities for garbage collection, recycling centers, or they are not accessible to its residents. This makes proper waste disposal challenging, potentially contributing to illegal dumping activities.	
1. Low (1 point)	There are waste management facilities, but their accessibility is limited or they don't fully meet the municipality's needs.	The number, location, and operational hours of the facilities might be insufficient or not appropriate, complicating proper waste disposal.	

2. Moderate (2 points)	The waste management infrastructure is satisfactory and accessible, but there are areas that require further development.	Generally, the infrastructure meets the needs of the residents, but there are certain areas or aspects that need improvement to make waste management even more efficient.	
3. High (3 points)	An excellent waste management infrastructure is available, easily accessible, and meets the needs of the municipality.	The number, location, and operational hours of the facilities align perfectly with the residents' needs, promoting proper waste disposal and preventing illegal dumping.	
3. Information and Education:			
How informed is the public about the consequences of illegal dumping? What is the level of environmental consciousness, and what educational/communication programs are implemented in the municipality regarding waste management?			
0. None (0 points)	There's a lack of information and education on illegal dumping and its consequences.	No active communication or education is carried out in the municipality about waste disposal and the detrimental effects of illegal dumping, leading to potentially irresponsible waste handling by the residents.	
1. Low (1 point)	There are informational and educational programs, but they are of limited effectiveness or don't reach the entire municipality.	Efforts are made to raise awareness in the municipality, but they are either insufficient, less effective, or don't reach every segment.	
2. Moderate (2 points)	The information and education provided are effective, but there are groups that are not reached or not adequately educated.	While the informational and educational programs are functioning and effective, there are areas or groups that need further attention to be fully informed.	
3. High (3 points)	Exceptionally effective informational and educational programs are in place, reaching all age groups and segments.	The municipality runs outstanding communication and educational programs that reach every resident, fostering a more conscious approach to waste disposal and reducing illegal dumping.	
4. Surveillance of Illegal Waste Accumulation:			
What regular and effective methods are used to monitor and inspect potential illegal dumping sites? How swift is the response time to handle such cases?			
0. None (0 points)	There is no surveillance system to identify and manage potential illegal dumping sites, or the inspections are not regular, and the response time to reports is lengthy.	There is a lack of regular monitoring and swift response to potential illegal dumping sites. This means that the municipality doesn't conduct proactive inspections to identify such sites and manage waste removal, or the response time to reports is lengthy, which can exacerbate the	
1. Low (1 point)	Inspections are regular, but the response time to instances of illegal dumping is long or the management is ineffective.	Regular inspections are conducted; however, the handling of reports is slow or ineffective. This could mean that while the local government strives to identify illegal dumping sites, the response time is prolonged or waste removal isn't executed..	

2. Medium (2 points)	Inspections are regular and the response time is acceptable, but the inspection methods and management aren't fully effective or comprehensive	The municipality regularly inspects potential illegal dumping sites and the response time is appropriate, but the inspection methods or waste management aren't entirely efficient. This could mean that while the local government responds swiftly to reports, further improvements in inspection methods or waste management are needed for even more efficient operations.	
3. High (3 points)	Outstandingly effective and regular inspection methods are available, the response time to reports is swift, and management is also effective.	The municipality inspects potential illegal dumping sites regularly and efficiently and responds rapidly to reports. This indicates that the local government is proactive and acts swiftly to identify and handle illegal dumping sites, significantly contributing to the community's cleanliness and environmental status.	
5. Waste Reduction and Recycling Strategies:			
What programs, support, or initiatives have been launched in the municipality to reduce waste and promote recycling? How successful are these strategies?			
0. None (0 point)	There are no waste reduction and recycling strategies, or they are inaccessible and unimplementable for the residents.	This means that the municipality does not have efficient waste reduction and recycling plans, or these plans are not accessible or unimplementable for the residents, which could exacerbate the issue of illegal dumping.	
1. Low (1 point)	There are strategies in place, but they have limited effectiveness or do not reach the entire community.	This means that there are waste reduction and recycling plans in the community, but their efficiency is limited or they are only available to a narrow group, which may hinder the environmentally conscious behavior of the entire municipality.	
2. Medium (2 points)	The strategies are effective, but there are groups that are not reached or do not receive adequate support for participation.	This indicates that while there are functioning waste reduction and recycling plans in the municipality, certain groups, such as those living in remote areas or those with low incomes, are unable to utilize them.	
3. High (3 points)	There are excellently functioning, effective waste reduction and recycling strategies that reach all age groups and segments of the population.	This means there are accessible and implementable waste reduction and recycling plans for every resident of the municipality, which are efficient and contribute significantly to environmental protection.	
Total Points Achieved:			

The table above clearly illustrates the comprehensive evaluation criteria we aim to establish for examining the management of every urban safety risk. The National Standard should define specific urban activities based on these, particularly focusing on processes indexed at the highest (3 points) value for quality management purposes. It's essential that the processes and tasks prescribed in the standard are defined in such a way that they can be examined and judged as objectively as possible by those conducting the assessment - that is, the urban safety audit required for grant application evaluation.

Our current work is at the stage of defining the risk assessments for the 43 urban safety risks. According to plans, this phase will be completed by this December, so we can soon begin the

description of urban safety processes, followed by the preparation of the standard document. The projected timeline for this is approximately 2 years.

VI. Conclusion

It is imperative to reiterate that the state alone cannot ensure local public safety; it requires partners to jointly establish and maintain a public safety network.²⁰ Municipalities play an indispensable role in shaping municipal safety and are the closest allies of state agencies. However, due to the heterogeneous nature of their legislative application and operations, they inevitably need support. Municipalities can seek assistance in organizing law enforcement and municipal safety professional training and continuing education²¹, as well as in conducting research and studies from the National University of Public Service. Additionally, they can obtain guidance and expert external controlling and compliance services from the specialists of the Municipal Safety Division. Recognizing the needs of municipalities in the area of urban safety, the Municipal Safety Division has taken on a task that, until now, no one in our country has undertaken: to define the components of municipal safety and to develop an municipal safety standard that will serve as the basis for future audit activities.

Standardization not only provides theoretical frameworks for municipal safety but also acts as a practical guide for those committed to enhancing municipal safety and protecting residents and businesses. The audit activity will highlight how municipalities carry out their municipal safety tasks, identifying practices that are effective and areas of municipal activity and processes that require improvement.

The desired outcomes are certainly pioneering and will hopefully further enhance the safety of Hungarian municipalities and serve as an example for other countries as well.

The municipality runs outstanding communication and educational programs that reach every resident, fostering a more conscious approach to waste disposal and reducing illegal dumping.

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²⁰ Zsolt Polyák (2023). A közbiztonsági háló jelentősége a helyi rendészetben. *Belügyi Szemle*, no 6. (2023)

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New Trends in Illicit Drug Markets and Laboratories – a Forensic Aspect

Gábor Béla¹

According to the latest World Drug Report of the United Nations Office on Drugs and Crime (UNODC) we can see a global rise in synthetic drug consumption worldwide, the same way in Europe, also affected by the war in the Ukraine. The same trends can be seen in the latest report of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA).

Criminals need to find new ways of smuggling and trafficking drug to the EU using new routes. Illicit laboratories are mostly found in the Netherlands and Belgium, but as the European market expands new laboratories are expected to rise in other EU countries, so in Hungary. Criminal and forensic experts must be prepared for these new challenges. Looking at the trends it is only a question of time the Hungarian authorities will have to face this kind of issues. A well-equipped and trained team of experts will be needed to investigate on the crime scene, secure evidence and dismantle this kind of illicit laboratories.

Latest development of the criminal activities and illicit laboratories special education and equipment required will be shown in my presentation according to the newest standards and “best practices” of other countries in the EU. A special system of entering and securing evidence as well as dismantling such a lab is essential.

Keywords: drug report, trends and development, forensic

I. Health issues of substance use – background information²

Drug use by drug treatment: opioids in most of Europe and most regions of Asia, cocaine in Latin America, cannabis in parts of Africa, and methamphetamine in East and South-East Asia. However, opioids remain the leading cause of death from fatal overdoses.

Different drugs place different burdens on health and health systems. Most substance use disorders are related to marijuana and opioids, which are the drugs that cause most people to seek medical treatment. However, opioids remain the deadliest drugs. Of all countries ranking drugs that cause substance use disorders, the majority (46% of countries) ranked cannabis first, 31% ranked opioids first, especially heroin, and 31% ranked opioids first. Amphetamine-type stimulants, especially methamphetamine, were first reported in 13% of countries.

Each country's ranking is determined primarily by two factors: prevalence of use and potential for addiction. There are clear regional differences in the main drugs people report in drug treatment: in most of Europe and most subregions of Asia, opioids are the most common main drug people report in drug treatment, while in Latin America it is cocaine. Marijuana in Africa, methamphetamine in East and Southeast Asia. However, opioids remain the leading cause of fatal overdose deaths³.

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² Source: UNODC World Drug Report 2023 (<https://www.unodc.org/unodc/en/data-and-analysis/world-drug-report-2023.html>)

³ In 2019, opioids were responsible for nearly 70% of the 128,000 deaths caused by substance use disorders. Opioid use disorders also account for the majority (71% of the 18 million years of healthy life lost to premature death and disability in 2019). Source: UNODC World Drug Report

Based on the latest data⁴ from the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), available at the end of 2022, an analysis of the supply indicators for illicit drugs commonly used in the European Union shows that all types of substances remain widely available, often with high potency or purity. These include new or novel substances, the health risks of which may be limited both in terms of consumer awareness and scientific knowledge. Substances may also vary in availability, form, and consumption patterns on the market.

Taken together, these developments increase the risk that the overall use of banned substances may increase and that the risks associated with certain substances may increase. Of particular concern is that people who use drugs are at greater risk of adverse health consequences, including poisonings or deaths, because they may unknowingly be consuming more potent or novel substances.

The globalisation of operational methods used by organised crime groups appears to be a major factor in the high availability of drugs in Europe. There is evidence that European drug producers and traffickers are becoming more closely intertwined with international criminal networks, leading to a more flexible flow of illicit drugs into and out of the European Union. South America, West and South Asia and various countries in North Africa remain important source countries for illicit drugs entering Europe, while China and India remain important source countries for new psychoactive substances, with India's role likely to become increasingly important for certain substances. It is also reported that drug precursors and related chemicals often originate from China.

II. Actual trends in illicit trafficking and laboratories

Large quantities of drugs in intermodal containers have continued to be seized over the past few years, suggesting that this form of trafficking has not been seriously disrupted during the pandemic and that EU ports and airports may continue to be an important source of supply⁵.

There are signs that the market has largely adapted to the disruption caused by the measures introduced during the pandemic, which are likely to stem from the current war in Ukraine. There is a general concern that drug trafficking operations are increasingly using the legal trade infrastructure involved in global trade, with documented attempts to infiltrate supply chains and to involve key personnel through intimidation or corrupt practices. This is reflected in the increasing importance law enforcement agencies are placing on countering this kind of threat.

In general, and particularly in countries from which large quantities of drugs enter Europe, and in European countries where production takes place, there is a growing recognition among policy makers and the public that tackling violence and corruption associated with drug market operations is an increasingly important issue.

A total of 434 illicit synthetic drug laboratories, including some large-scale facilities, have been dismantled in the EU in 2021. The review of these production sites has highlighted not only the significant synthetic drug production capacity in Europe, but also the increasing diversification of the production processes used for certain drugs.

⁴ Source: EMCDDA: European Drug Report 2023 (based on data available by the end of 2022) https://www.emcdda.europa.eu/publications/european-drug-report/2023/drug-situation-in-europe-up-to-2023_en

⁵ Source: Serious and Organised Crime Threat Assessment Report (Socta-report 2021) https://www.europol.europa.eu/cms/sites/default/files/documents/socta2021_1.pdf

In 2021, compared to 2020, the number of laboratories for the production of cocaine and methamphetamine increased, remained stable for amphetamine, while there was a slight decrease in the number of sites for the production of synthetic cathinones.

The scale and complexity of illicit drug production in Europe continues to grow and Europe remains a production region for cannabis and synthetic drugs; cannabis is generally produced for consumption in Europe, while synthetic drugs are also produced for markets outside the EU⁶.

Detection of MDMA sites also fell by a quarter, possibly reflecting a shift towards the production of other synthetic substances. However, these figures should be interpreted with caution, both because of the potential impact of the pandemic on police action and reporting, and because the relative effectiveness of law enforcement in detecting production sites may be affected by a number of factors. However, the detection of separate facilities for the production, extraction, cutting and packaging of cocaine suggests that cocaine production is now well established in Europe and that more innovative methods are being used to facilitate smuggling.

Innovation in production processes is also demonstrated by the recent seizure of some chemicals that can be used to manufacture precursor chemicals for amphetamine, methamphetamine and MDMA, thus circumventing the regulations put in place to reduce the availability of these drugs. There are also examples of chemically disguised synthetic cathinone derivatives being marketed, which are then transformed into cathinones suitable for sale as drugs in the European Union.

Although they are not common, combined laboratories or multi-drug production sites have continued to be detected between 2017 and 2020. These usually involve the production of several different stimulant drugs, such as amphetamine or MDMA in combination with methamphetamine, on the same site. Interestingly, in 2021, several EU Member States reported the dismantling of methamphetamine production sites and the seizure of precursors for their production, increasing the availability of the drug in a growing number of countries. It should be noted that methamphetamine is often produced for export to lucrative markets outside the EU. The increase in laboratory detections and precursor seizures suggests that Poland is likely to be an important location for the production of synthetic cathinone in Europe. The extent to which this production is directed towards European markets or for export to countries outside Europe remains unclear.

The use of a broader range of chemicals, both new substances and the use of known drugs in various synthesis processes, poses complex challenges for customs, law enforcement and regulation. Illicit synthetic drug production within the European Union for export and local markets continues to pose a risk to public health, both in terms of people consuming potentially dangerous substances and the local environmental damage caused by their production. As key logistics supply chains are key targets for infiltration by organised criminal groups, attempts to bribe workers and officials are an increasingly important component of the negative impact of illicit drug markets on communities through associated violence and corrupt practices⁷.

⁶ Source: EMCDDA Papers: Drug precursor developments in the European Union https://www.emcdda.europa.eu/publications/emcdda-papers/drug-precursor-developments-eu_en

⁷ Interpretation of drug seizure trends is complicated by the fact that they are influenced by police and law enforcement strategies and priorities, the success or failure of drug trafficking groups to avoid detection, and any underlying changes in availability and use. In the European Union, around 1 million seizures were reported in 2021, of which cannabis products were the most commonly seized, accounting for three quarters of all seizures.

In terms of numbers, fewer cannabis resin (-37%), plant cannabis (-6%), cocaine (-3%), amphetamine (-18%) and heroin (-40%) seizures were made in 2021 than in 2011. This may reflect changes in police practice rather than changes in consumption patterns or availability of drugs. The largest increases in seizures between 2011 and 2021 were observed for methamphetamine (+121%) and MDMA (+42%). (Source: EMCDDA European Drug Report 2023)

III. Latest trends in drug-related crime

Overall, the indexed trends show that the total amount of drugs seized in the European Union increased between 2011 and 2021, particularly over the last 5 years, although there has been some fluctuation in the amount of amphetamine and methamphetamine seized over the last 3 years⁸.

According to the latest data⁹, Captagon¹⁰ tablets destined mainly for Arab countries are produced in the Netherlands, where they are manufactured on a case-by-case basis with existing equipment. According to the Dutch police, one or two large Captagon production sites and pill manufacturing plants are found in the Netherlands each year. In three cases, in 2018, 2019 and 2020, these sites were linked to amphetamine production and tableting operations.

It is believed that the production of captagon tablets is not a common activity of synthetic drug producers in the Netherlands, but rather an opportunistic money-making opportunity when there is a specific order or demand. In 2019, in the largest case reported by the Netherlands, an estimated 3 million captagon tablets (534 kilograms) were found hidden in a concrete counterweight designed for heavy machinery such as cranes or excavators. Then, in 2021, a large shipment of around 2 million captagon tablets was found packed in sealed Quaker brand tins of oatmeal. The labels on the cans had Arabic text, so it is assumed that they were destined for Arabic-speaking countries, possibly the Arabian Peninsula. Also in 2021, an amphetamine production site in the Netherlands was dismantled; 63 kilograms of amphetamine and 37 kilograms of caffeine were found, as well as pill punches used to make captagon tablets. Although no pill-punching machines or captagon tablets were found at the site, the combination of amphetamine, caffeine and equipment indicated that they were intended to produce captagon tablets. In the Dutch cases, it was observed that the suspects were often linked to Middle Eastern countries, either by nationality or birth.

IV. Joint training on the dismantling of illicit drugs laboratories

Europol and Cepol have developed and regularly organise joint theoretical and practical training on the dismantling of illicit drugs laboratories for criminal investigators and technicians, in English. The aim of the training is to present special police activities, criminal investigations and good practices related to various procedures, enhancing the professional cooperation of the different

⁸ Key data and trends: between 2011 and 2021, the biggest increases were for cocaine (+416%), herbal cannabis (+260%), methamphetamine (+135%), heroin (+126%), MDMA (+123%), cannabis resin (+77%) and amphetamine (+42%). There are significant consumer markets for these drugs in Europe, but it is likely that the increase in seizures reflects, at least in part, the greater role of Europe as a production, export and transit destination for these drugs. (Source: EMCDDA European Drug Report 2023)

⁹ Source: EMCDDA Captagon Report (2023.09.24.) https://www.emcdda.europa.eu/publications/technical-reports/captagon-trafficking-and-role-europe_en

¹⁰ “Captagon® was the brand name of a psychoactive medicine produced in the 1960s by the German company Degussa Pharma Gruppe. It was sold as round, whitish tablets embossed with a characteristic logo comprising two half-moons. It was prescribed mainly as a treatment for attention deficit disorder and narcolepsy, and as a central nervous system stimulant. Its two main markets were Europe and the Middle East. Captagon® tablets contained 50 milligrams of fenetylline, a synthetic drug of the phenethylamine chemical family to which amphetamine also belongs. Fenetylline is synthesised from amphetamine and theophylline, a natural alkaloid, bronchodilator and mild stimulant from the same family as caffeine. ... Virtually all the contemporary information available suggests that the tablets seized on illicit drug markets in recent years are not diverted Captagon® tablets containing fenetylline, but clandestinely manufactured tablets containing amphetamine that are embossed with a logo similar to the original medicine” (Source: EMCDDA Captagon Report)

response forces between European countries, increasing knowledge on proactive security and action to avoid potential emergencies and to deal with them in the most appropriate way.

Participants have the opportunity to exchange and discuss solutions, good practices and experiences from other Member States. It will provide specific training for participants to improve the coordination and management of operations based on CEPOL and Europol standards and to help dismantle illegal drug laboratories, using personal protective equipment in practice.

I have personal experience of the training, which I had the opportunity to attend this year, and it was a success in terms of international criminal cooperation, it achieved its purpose, as the colleagues in the groups exchanged professional experience and trained each other during the exercises. This gave the opportunity to think together, to solve the problems encountered, to build teams, to study new trends in international and national knowledge in use, to talk informally with colleagues from different Member States and different fields of work, to get to know each other's activities. The training also has an added value through the personal and professional contacts built up.

V. Dismantling drug laboratories in practice¹¹

The training was very useful and practical, with the theoretical basics being taught online in e-learning format, but the emphasis was on practical training. It focuses on the production of synthetic drugs, process description and detailed substance information. During the exercise, attention was drawn to the dangers of detecting and dismantling cannabis cultivations and synthetic labs. When entering a laboratory or its associated warehouses, the most important aspects are avoiding personal injury, protecting oneself and others, and using personal protective equipment.

Experience shows that laboratories are very often guarded by armed criminals. Raiding units are at risk of being attacked by criminals. In Western countries, laboratories are equipped with booby-traps, dogs, locked doors protected by high-voltage electricity, remote-controlled explosive devices and video cameras.

Only enter the laboratory or site after measuring the gases escaping or leaking with a gas detector. When first entering, a gas mask must be worn and ventilation and adequate air flow must be ensured by opening and propping open windows and doors.

When handling chemicals or taking samples, members of law enforcement agencies may be exposed to a number of dangerous situations due to the nature of the chemicals. Dust and gaseous substances, solvent vapours, which may be carried in an illegal laboratory, can pose an additional hazard. The involvement of a chemical expert is always necessary in such sites, particularly in view of the reaction taking place and the chemicals involved. The expert's opinion should also be taken in consideration in case other chemicals stored on the premises, including the packaging, taking samples, as the chemicals stored may react with each other, which may also pose a hazard.

For example - officials can inhale high doses of toxic fumes if they are not protected by a gas mask or face mask. If their skin comes into contact with some of these chemicals, it can cause burns. Inhaling the vapours of some chemicals or getting chemicals on your skin can cause cancer. Spills of various chemicals during sampling can lead to the release of toxic or explosive gases.

At the same time, adequate escape routes should be provided. By moving any obstacles that may have been deliberately or inadvertently placed in the escape route.

In view of the above trends, it can be said that all EU countries are involved to some extent, but only to varying degrees at present. However, we need to be prepared for the possibility of such a

¹¹ Based on the information of Cepol and Europol training program

situation when we encounter a major drug laboratory or large quantities of drug precursors in our country, posing an unprecedented challenge to our technical and forensic colleagues.

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The Application of Psychiatric Expertise In Law Enforcement

Mária Zsóka Bellavics¹

The correlation between the psychiatric state and crime is widely known. The presence of a mental illness can often be observed in criminal cases and it has been proven that psychiatric disorders increase the risk of deviance. Given this knowledge, the question arises; whether law enforcement agencies can benefit from the experience and scientific achievements of psychiatric professionals. In the present paper we try to find the answer to this question. After a brief introduction of the psychiatric discipline the field of law enforcement reviewed where psychiatric expertise can be applied: criminal profiling and the most important methods of it, crime scene profiling, interrogation strategy and proactive media communication strategy. We demonstrate the advantages of psychiatric knowledge in law enforcement activity mainly through two mental disorders: schizophrenia and personality disorder.

Keywords: psychiatry, crime, profiling, interrogation, media communication

I. Introduction

The application of behavioral sciences in the fields of law enforcement has a long history. It is mainly the results of psychology that comes to mind when the role of mental health professionals during law enforcement activity is in the focus. It is undeniable, that psychology as the discipline of which the task is to explore and understand the overall human psychic has a special relevance in any case when the interpretation of the behavior is the goal.² On the other hand, due to the comprehensive nature of psychology, more specialized insight may be required in the case of certain extreme phenomena. Pathological mental state in relation to crime is one of those special situations when more focused specialty needed. The advantage that the special knowledge of psychiatry can offer in criminal cases that include mentally affected participants is widely recognized. The application of psychiatry in relation of crime is given as a routine due to the established activity of forensic psychiatry. Although the role of forensic psychiatrists in criminal cases is clear and generally accepted, it is often limited precisely because it is well defined and routine. Psychiatric expertise is mainly focused on the assessment of the mental capacity of the offender or other participants of the crime to estimate their competency to stand trial.³ This limited use of psychiatric knowledge is a waste of potential on several levels since the psychiatric field's understanding of the human psyche is way deeper and more complex than simply estimating someone's capability of conscious decision-making. There have been occasions when the possibilities of the utilization of psychiatry during law enforcement activity have been tried and succeeded. Criminal profiling is one of the most important methods by which psychiatric expertise

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² Ellen Scrivner, David M. Corey, and Lorraine W. Greene. 'Psychology and law enforcement.' *The handbook of forensic psychology* (2006), 534-551.

³ Julio Arboleda-Flórez 'Forensic psychiatry: contemporary scope, challenges and controversies', *World Psychiatry* 5, no 2 (2006), 87-91. PMID: 16946941; PMCID: PMC1525122.

has been successfully applied during criminal investigations.⁴ In fact, the very beginning of criminal profiling has a strong connection with psychiatry. In the 1950`s the case of the Mad Bomber, George P. Metesky was the first time when a criminal profile was successfully made. The profile was the work of a psychiatric practitioner, James A. Brussel. Brussel created the Bomber`s crime scene profile based on police reports and his clinical experience. The profile was so accurate that it shocked not only the law enforcement community, but it was a sensation even amongst laics.⁵ The spectacular success of Brussel`s profile encouraged criminal professionals to create methods using similar approach. A widely known example for this is the design of Criminal Investigative Analysis (CIA) developed by the Federal Bureau of Investigation, of which the famous organized - disorganized categorization has definite analogy with conditions defined by the psychiatric field. Besides the established profiling approaches, clinicians are still included during profiling activity. Although when they are it is usually sporadic, and their involvement is highly dependent on the nature of the actual case and the personal experience of the specialist.^{6,7} When criminal profiling is mentioned the first thing that comes to mind is crime scene analysis. Crime scene analysis is the most critical aspect of criminal profiling indeed, but there are other subfields of the method that deserve attention. Here we mention the most relevant ones, that are the following: crime scene analyzes, interrogation strategy and media communication.⁸ All of them may have an important role during criminal investigations supporting the work of law enforcement professionals. Since criminal profiling is mostly utilized in cases when a special psychological character of the offender is suspected, applying the psychiatric experience may be useful if not critical. In the following we introduce the potential role of psychiatric expertise in each criminal profiling method.⁹ Due to length limitation, we will not exhaust this topic, but it is not the goal anyway. Here we attempt to give the reader a brief insight to the nature of psychiatric knowledge and the possibilities it offers to the field of law enforcement.

II. Psychiatric knowledge

When the possible application of psychiatric expertise in criminal cases is in the focus, it is essential to clarify the actual definition of psychiatry and briefly introduce its assets. Psychiatry is a medical discipline of which the focus is the psyche and the disorders that affect it. Although psychiatry has a waste body of science and literature behind it, it is mainly a practical field hence the focus is the treatment of the mentally ill. Psychiatric professionals – even those who tend towards theoretical aspects of the field, all have a well based practical experience. This is important to emphasize, since this is one of the major factors that differs it from its closest fellow science, psychology. The

⁴ Michael G. McGrath, ‘Criminal profiling: Is there a role for the forensic psychiatrist?’, *The Journal of the American Academy of Psychiatry and the Law* 28, no 3 (2000), 315-324. PMID: 11055529.

⁵ Louis B. Schlesinger, ‘Psychological profiling: Investigative implications from crime scene analysis’, *The Journal of Psychiatry & Law* 37, no 1 (2009), 73-84. <https://doi.org/10.1177/009318530903700106>

⁶ Brent E. Turvey, *Criminal Profiling, An Introduction to Behavioral Evidence Analysis*, (London: Academic Press, 2023).

⁷ The CIA distinguishes two types of offenders: the one that leaves an organized crime scene and the other with a disorganized scene. Organized perpetrators show high level of control, planning and have good social skills, the disorganized type is socially incompetent, commits unplanned crimes and impulsive. The first subgroup corresponds psychopaths described by the psychiatric field; the latter falls in to the psychotic category of psychiatric nosology. Turvey, ‘Alternative Methods’, 75-122.

⁸ Turvey, ‘Criminal Profiling’.

⁹ McGrath, ‘Criminal profiling’.

latter is primarily a theoretical science.¹⁰ Applied psychologists are trained on the postgraduate level and it is a possibility chosen by only a part of them.¹¹ The other main characteristic of psychiatry that is worth underlining is its special object. As a medical field main concern of it is indeed the mentally ill. However, the stereotype that psychiatry is competent only in the case of severe mental disorder is not true. Psychiatrists are trained in hospitals treating major psychiatric patients during their internship. Later in their career they can turn towards psychotherapy via which they can get a deep insight into the human psyche that is not affected by severe mental disorders.¹² But without psychotherapeutic specialty psychiatrists can focus on the psychological aspect of the field if they have the personal aspiration to it. In psychiatric wards not only severe pathologies are treated. Patients get hospitalized dealing with crisis, life circumstances provoked affective problems, substance abuse and decompensation of personality disorders daily.^{13;14} As a result of that psychiatrists have the opportunity to get a practice-based knowledge about the human personality from the very beginning of their training. Therefore, the stereotype that psychiatrists cannot handle cases without major mental disorder is not accurate. It is better to say that psychiatrists are the most confident, when the mental disorders are serious, and they are the most competent professionals in such cases. Psychiatry concentrates on the mental condition, which means it works with the manifestations of the psyche – psychology on the other hand focuses on the general structure of it.¹⁵ The most important `tool` of psychiatry is the psychiatric status, with a precise description of the perceptible manifestation of the actual mental condition. The psychiatric status investigates the subject's condition by aspects such as the orientation, the style of thinking and the apparent sign of affective functions.¹⁶ The precise examination routine required by psychiatrists gives them a unique understanding of metacognition that only a few professional experiences can provide. In psychiatry there is a great importance attributed to the so-called anamnesis, that both include the medical antecedent, family history, the prior lifestyle, and socio/economic circumstances. As we mentioned, besides the medical status the personality is assessed, and professionals pay attention to it as a crucial factor during the treatment. A hospitalization usually takes weeks, but in certain cases it can last for months, even years. During this time the psychiatrists closely follow the patient's condition with a special regard for their interactions and overall behavior. All these different aspects of the patient's condition are summarized under the diagnoses.¹⁷ Giving a diagnosis to a patient is not only giving a name to the symptomatology. The diagnosis is only a word for those who do not understand the logic of psychiatry. The psychiatric diagnoses include all the aspects of the condition we just detailed, and even more. With a diagnosis the clinicians assume the etiology of the condition, in other word they

¹⁰ Thomas Grisso, 'The differences between forensic psychiatry and forensic psychology', *Journal of the American Academy of Psychiatry and the Law Online* 21 no 2 (1993), 133-145.

¹¹ Robert S. Woodworth, 'The future of clinical psychology', *Journal of consulting and clinical psychology* 60 no1 (1992), 16-17. <https://doi.org/10.1037/0022-006X.60.1.16>

¹² Glen O. Gabbard, 'Psychotherapy in psychiatry', *International review of Psychiatry* 19 no1 (2007), 5-12. <https://doi.org/10.1080/09540260601080813>

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¹⁴ Charles R. Swenson et al., 'The application of dialectical behavior therapy for patients with borderline personality disorder on inpatient units', *Psychiatric Quarterly* 72 (2001), 307-324. <https://doi.org/10.1023/A:1010337231127>

¹⁵ Woodworth, 'The future of clinical psychology'

¹⁶ Ahmed Aboraya et al., 'The reliability of psychiatric diagnosis revisited: The clinician's guide to improve the reliability of psychiatric diagnosis', *Psychiatry (Edgmont)* 3 no1 (2006), 41-50 PMID: 21103149; PMCID: PMC2990547.

¹⁷ Aboraya, 'The reliability of psychiatric'

specify the origin of the condition, e.g. whether the symptoms have the root on the personality or it is due to a biological reason. This makes a huge difference, since a potential biological etiology we assume that the patients overall functioning is affected. Furthermore, with the diagnosis the psychiatrist assumes the future outcome of the patient's condition, that means they attempt to predict the longitudinal run of his life. To summarize, the diagnosis is a profile of the patient for those who understand it. Adopting this kind of knowledge in criminal cases can increase the quality of criminal profiling a great deal.^{18;19}

III. Criminal profiling

In the following we discuss the possibilities of the application of psychiatric knowledge in the different aspects of criminal profiling. But before we start to introduce the different areas of it, first we must define criminal profiling. Several authors attempted to give the specific definition of criminal profiling, and they all agree on certain aspects of it. First, criminal profiling is a method of which the goal is to support the criminal investigation and not to carry it out. This may sound obvious for many, but due to the popularity of criminal profiling in the entertainment industry and the way criminal profiling is represented in pop culture, there are many misconceptions about it even among professionals. Criminal profiling basically attempts to give a general description of an unknown offender based on their behavior shown in the crime scene. With this image it helps the investigators to narrow the circle of suspects. The basic assumption of the criminal profile is that the criminal behavior has correlation with other traits that have no direct role in the criminal act per se. These traits usually involve personality, socio-economic and criminal characteristics. The depth of the profile varies by the criminal profiling methodology.²⁰ There are several approaches of criminal profiling, but there are only four that almost always mentioned; the aforementioned CIA, Investigative Psychology attributed to Canter, Brendt Turvey's Behavior Evidence Analyses and the so-called clinical profile, that has no established methodology and is more like an umbrella term, involves clinical practitioners assisting to investigations. Each approaches have different scientific backgrounds, hypothesis, and method therefore the nature of the resulting profile varies between them.²¹ In this paper we just mention these approaches and we leave their detailed explanation to further publication, since the goal here is to discover the possibilities of the clinical profile. The essence of criminal profiling is the crime scene profile. During profiling activity, the goal is to reconstruct an unknown person behind a crime of which the most important information's we can find in the crime scene. This is not limited to the crime scene per se but includes witness testimonies, autopsy reports and the result of other forensic expertise. Based on the integration of all this information, the profiler creates the profile based on the methodology they use.²² The crime scene profile is the main aspect of the role of the criminal profiler, but in certain cases it does not stop there. When it required the criminal profiler is competent to provide further aid to the

¹⁸ American Psychiatric Association, D. S. M. T. F., and American Psychiatric Association. *Diagnostic and statistical manual of mental disorders: DSM-5*. Vol. 5. No. 5. Washington, DC: American psychiatric association, 2013.

¹⁹ Allen Frances, 'The past, present and future of psychiatric diagnosis', *World Psychiatry* 12 no 2 (2013), 111. doi: [10.1002/wps.20027](https://doi.org/10.1002/wps.20027)

²⁰ Wayne Petherick and Nathan Brooks, 'Reframing criminal profiling: a guide for integrated practice', *Psychiatry, Psychology and Law* 28 no 5 (2021), 694-710. DOI: [10.1080/13218719.2020.1837030](https://doi.org/10.1080/13218719.2020.1837030)

²¹ Turvey, 'Criminal profile'

²² Laurence Alison et al., 'The personality paradox in offender profiling: A theoretical review of the processes involved in deriving background characteristics from crime scene actions', *Psychology, Public Policy, and Law* 8 no 1 (2002), 115-135. <https://doi.org/10.1037/1076-8971.8.1.115>

investigators. This usually means that they follow the process of the investigation and assist in it actively. There are two main areas where the profiler can help the investigation: media communication and interrogation strategy.²³ Media communication is a proactive strategy aimed at provoking the perpetrator to show some activity or make them contact the police in some way so they can be identified. Media communication usually uses some kind of psychological strategy and strongly relies on the crime scene profile. The same is the case during the interrogation strategy as well, with the only difference that at this point of the investigation a suspect has been arrested and the profiler assists the investigator in the hope of a confession. Law enforcement and behavior science already came up with interrogation strategies that have already been proven to be effective.²⁴ These strategies focus on the most effective ways to get to the truth detecting controversies in the testimony and they are not specific to different types of personalities.²⁵ The interrogation strategy that the criminal profiler creates is more like a psychological tactic of which the aim is to get to the specific subject therefore it is designed to the actual person and based on the crime scene profile.

IV. The Clinical approach in the different aspects of criminal profiling

Clinical profiling is the approach of criminal profiling that applies the knowledge and experience of mental health professionals. Psychiatry is not the only clinical discipline that can be utilized for this goal. Clinical psychology is also suitable for this purpose, and in ideal circumstances the two are used together. However, in this paper we focus on psychiatry with the special regard of its advantages detailed before. Clinical profiling does not have an established methodology and contrary to the other criminal profiling approaches there has been no empirical research carried out aiming to give it a scientific background. Clinical profile highly relies on the personal experience of the clinicians.²⁶ However, if there are no studies having the specific goal to develop a clinical profiling method, there have been several researches done to explore the correlations between mental disorders and crime.²⁷ Among the results of these works we can find many that are suitable to apply during criminal profiling activity. In the following we will refer to them while representing the potential of psychiatric knowledge in relation of criminal investigations.

A Crime scene profiling

Crime scene profiling is the very base of criminal profiling and accordingly most of the research focuses on this aspect of the method. When the correlation of psychiatry and crime is the subject psychoses is the phenomenon that is discussed the most often.²⁸ Psychosis is a condition that can occur on the bases of several psychiatric disorders. In the state of psychosis, the person loses the connection with reality. Psychoses can occur in various forms. The most characteristic psychotic

²³ Sanjeev P Sahni and Tanni Choudhury, 'The science of criminal profiling', *Criminal Psychology and the Criminal Justice System in India and Beyond* (2021), 51-68. https://doi.org/10.1007/978-981-16-4570-9_4

²⁴ Turvey, 'Criminal profiling'

²⁵ Christian A. Meissner et al. 'Developing an evidence-based perspective on interrogation: A review of the US government's high-value detainee interrogation group research program', *Psychology, Public Policy, and Law* 23 no 4 (2017), 438-457, <https://doi.org/10.1037/law0000136>

²⁶ Turvey, 'Criminal profiling'

²⁷ Emily D. Gottfried and Sheresa C. Christopher., 'Mental disorders among criminal offenders: A review of the literature', *Journal of correctional health care* 23 no 3 (2017), 336-346. <https://doi.org/10.1177/1078345817716180>

²⁸ Helinä Häkkänen and Taina Laajasalo, 'Homicide crime scene behaviors in a Finnish sample of mentally ill offenders', *Homicide Studies* 10 no 1 (2006), 33-54. <https://doi.org/10.1177/1088767905283544>

symptoms are hallucinations and delusions. Hallucinations are perceptions that lack external stimulus, delusions are false ideas in which the person unwaveringly believes. The most common psychiatric disorder that comes with psychoses is schizophrenia. Schizophrenia is a chronic psychiatric disorder that leads to the person's deterioration in the long run. The psychoses characteristic to schizophrenia usually comes with hallucinations – mainly the auditory type and delusions. Besides that, disorganized speech, grossly disorganized or catatonic behavior and negative symptoms²⁹ can be observed.³⁰ Several studies investigated the violence correlated to schizophrenia, and many of them showed results can be useful for crime scene profiling. For example, studies found that the crime scene of violent offences committed by schizophrenics are usually disorganized, shows signs of extreme brutality and bizarre. The victimology can be characteristic in the case of murders committed by people with schizophrenia.³¹ Close relatives as victims are typical. Matricide is especially common among schizophrenic murderers, and this is true vice versa; the most matricide is committed by people with the disorder.³² The profile of the schizophrenic offender has been investigated as well. Research has found that those patients who show violent tendencies usually come from lower socio-economic background, single, and live an isolated lifestyle. They are usually men. A typical symptomatology has been identified as well, patients with violent tendencies usually suffer from commending or threatening acoustic hallucinations and religious, paranoid or possession type delusions.^{33;34} Schizophrenia is a good example to demonstrate that psychiatric knowledge can support the criminal profile. Paraphilias have an unquestionable importance in criminal profiling due to their significance in serial murders^{35;36} and they are often related to personality disorders.³⁷ Personality disorder is class of mental disorders characterized by pervasive dysfunction of behavior, cognition, and emotional experience. The maladaptive pattern of coping mechanisms is exhibited across many contexts and deviating from those accepted by culture. There are three clusters of personality disorders, Cluster

²⁹ Negative symptoms can appear in several forms. The most typical to schizophrenia is the decrease of emotional expressions, the lack of motivation and spontaneous activities, spontaneous speech and the loss of the ability to enjoy pleasures previously appreciated and asociality. American Psychiatric Association, 2013

³⁰ American Psychiatric Association, 2013.

³¹ Jonghan Sea, Eric Beauregard, and Sanggyung Lee, 'Crime scene behaviors and characteristics of offenders with mental illness: A latent class analysis', *Journal of forensic sciences* 65 no 3 (2020), 897-905. doi: 10.1111/1556-4029.14276

³² Robert A. Schug, 'Schizophrenia and matricide: An integrative review', *Journal of Contemporary Criminal Justice* 27 no 2 (2011), 204-229. <https://doi.org/10.1177/1043986211405894>

³³ Both hallucinations and delusions have several types. Hallucinations can occur at the level of all sensory modality - e.g. visual and acoustic, and they are quite variable by their theme – e.g. an acoustic hallucination can be commending, commenting or threatening. The same is true to delusions, there are several types of delusions – e.g. paranoid, possession or religious type. The type of the symptom and its content are usually typical of the patient. American Psychiatric Association, 2013.

³⁴ Markku Eronen, Jari Tiihonen, and Panu Hakola, 'Schizophrenia and homicidal behavior', *Schizophrenia bulletin* 22 no 1 (1996), 83-89. doi: 10.1093/schbul/22.1.83

³⁵ Paraphilias are perversions in the medical sense. The most important paraphilias in relation of crime are sadism – sexual arousal triggered by torturing people or animals, and fetishism – sexual arousal fixated on objects or body parts. American Psychiatric Association, 2013

³⁶ Gene G. Abel et al., 'Multiple paraphilic diagnoses among sex offenders', *Journal of the American Academy of Psychiatry and the Law Online* 16 no 2 (1988), 153-168.

³⁷ Peer Briken et al., 'Paraphilia-related disorders and personality disorders in sexual homicide perpetrators', *Sexual Offender Treatment* 5 no 1 (2010), 1-7.

A, B and C.³⁸ Based on scientific data cluster A and cluster B personality disorders are the most important among offenders of sexual crime. Cluster A personalities share certain common features: they live an isolated lifestyle; they tend to behave eccentric and show a significant level of social incompetence. They tend to have rapid psychotic episodes, that are way less severe than the condition occurs with schizophrenia, but it still can have serious impact on their behavior. Therefore, offenders with cluster A personality may show disorganized behavior and the lack of control or planning in the crime scene. Cluster B personalities on the other hand are socially competent, in many cases quite extrovert, manipulative, impulsive and dramatic. Their capability of control is much higher than people with cluster A personalities and this usually shown in an organized crime scene.^{39;40}

B Interrogation strategy

Psychiatrist spend a career examining the extreme cases of humanity and it is safe to say that psychiatrist are experts of communication from a certain point of view. In the case of severe mental disorders, such as schizophrenia the significance of the psychiatric experience is obvious. But in other cases, this need is not that evident. Personality disorder is an excellent example for demonstrating this. Personality disorders as it was explained before a pervasive pattern of maladaptive behavior, cognition and emotion. Personality disorder is usually the result of social learning among abnormal circumstances and many author treat them as dysfunctional versions of the human personality.⁴¹ Interacting with someone with a personality disorder can be confusing, but not in the same way as it can be with someone with a severe mental problem, such as schizophrenia. Individuals with personality disorder are able to recognize their actions and consequences of them. On the surface they are make the impression of rational people but as the definition of personality disorder suggest, their cognition and emotion regulation are strongly impacted. This manifest mainly in their personal interactions and it makes the difficult to deal with.⁴² The cluster B personalities have a special significance in relation of crime. This is especially true to antisocial and narcissistic personality disorder, but borderline personalities are more common among offenders than in the normal population as well.⁴³ Interrogating a borderline personality can be very challenging due to their poor emotional regulation, tendencies of manipulation and impulsivity. The special phenomena of splitting can result quite embarrassing situation for those who do not have experience this group of people. Splitting is a spectacular psychological trait people with borderline personality show. The essence of splitting is the so called black and white style of thinking, that means a person can see people whether perfect and all good, or the opposite end, bad and evil. This change of perception of others is dramatic and erratic for the surroundings and usually comes with extreme emotional intensity. For example, if a borderline

³⁸ Cluster A: paranoid-, schizoid and schizotypal personality disorder, Cluster B: antisocial-, borderline-, histrionic- and narcissistic personality disorder, cluster C: dependent, avoidant and obsessive-compulsive personality disorder. American Psychiatric Association, 2013.

³⁹ Turvey, 'Criminal profiling'

⁴⁰ American Psychiatric Association, 2013.

⁴¹ Robert E. Kendell, 'The distinction between personality disorder and mental illness', *The British Journal of Psychiatry* 180 no 2 (2002), 110-115. doi:10.1192/bjp.180.2.110

⁴² Annemarie Miano et al., 'Emotional dysregulation in borderline personality disorder and its influence on communication behavior and feelings in romantic relationships', *Behaviour research and therapy* 95 (2017), 148-157. <https://doi.org/10.1016/j.brat.2017.06.002>

⁴³ Randy A. Sansone and Lori A. Sansone, 'Borderline personality and criminality', *Psychiatry (Edgmont)* 6 no10 (2009), 16-20. PMID: 20011575; PMCID: PMC2790397.

personality sees someone all good and perfect, they tend to show extreme positive affections that are way inappropriate in the context. But with a sudden twist they can go from loving to openly hostile, that can be a hard situation to handle for the interrogator.⁴⁴ It is only one example that demonstrates what advantages may have the psychiatric insight during interrogations, but of course the list goes on and only due to the length limitations we do not exhaust it.

C Proactive media communication

It has been seen for several occasions that perpetrators on the run usually follow closely the media concerning the crime they have committed. It may have obvious motives: they try to collect information about the progress of the investigation for practical reasons. But in certain cases, the motivation is beyond the common sense and they are driven by emotional urges. This may be the case of perpetrators with certain personality disorders.⁴⁵ Antisocial-, narcissistic personality disorder and psychopathy are surrounded by many misconceptions. They certainly share many common features but they are not the same. Antisocial personality disorder is characterized by deviant attitude, lack of empathy and manipulative tendencies. People like that do not care with others, do not respect personal property, the law and refuse to reckon with the consequences of their actions. Antisocial individuals are impulsive and they show extreme level of sensation seeking. Psychopaths are people with antisocial personality disorder but they show further deviant traits. Psychopaths show extreme callousness, Machiavellianism, a tendency to manipulate on an extreme level, sadism and narcissism. Narcissistic personality disorder certainly shows similarities with antisocial personalities and psychopaths, but their overall character is distinguishable from the two.⁴⁶ The narcissistic personality's most important attribute is the extreme egoism and megalomania. They have a general sense of empowerment and consider themselves more important than the rest of people. They have an intense need to feel superior and they literally seek the admiration of others. They lack empathy and do not consider other people feelings, but they are usually more controlled than psychopaths and antisocial personalities. From a criminal perspective the main difference between narcissistic and antisocial personalities is their motivation. Antisocial personalities use aggression as primal coping mechanism, but their aggression is usually only a tool in practical agendas. This is the same with manipulation; they control people to get what they want.⁴⁷ Narcissistic on the other hand are motivated by their self-perception and the grandiose image they desperately try to show the world. This can be so extreme, that a narcissistic person would rather go against their best interest than to lose their sense of superiority.⁴⁸ If a law enforcement professional realizes this difference, he has a powerful tool against both type of perpetrators. Narcissistic perpetrators often take their crimes as glorifying acts that make them special and outstanding. They usually collect articles about their crimes and take their public image very seriously. In most of the cases, they do their best to stay in the shadows, but sometimes they cannot stand the temptation to show off with what they have done, and the history of criminology knows several cases when the offender got in touch with the media or the police sending bragging letters.⁴⁹ This phenomenon opens the possibility for law enforcement agencies to come up with

⁴⁴ Miano, 'Emotional dysregulation in borderline'

⁴⁵ Molly Gross 'Serial Murder and Media Coverage' (2020). *Honors Undergraduate Theses*. 794.

⁴⁶ American Psychiatric Association, 2013.

⁴⁷ John G. Gunderson and Elsa Ronningstam, 'Differentiating narcissistic and antisocial personality disorders' *Journal of personality disorders* 15 no 2 (2001), 103-109. <https://doi.org/10.1521/pedi.15.2.103.19213>

⁴⁸ Otto F Kernberg, 'The narcissistic personality disorder and the differential: diagnosis of antisocial behavior', *Psychiatric Clinics* 12 no 3 (1989), 553-570. DOI:[https://doi.org/10.1016/S0193-953X\(18\)30414-3](https://doi.org/10.1016/S0193-953X(18)30414-3)

⁴⁹Gross, 'Serial Murder and Media'

proactive communication strategies to make the perpetrator leak information of his identity and whereabouts.⁵⁰

V. Summary

In this paper we made an attempt to present the special knowledge and experience of the psychiatric field. We tried to convince the reader that the expertise of the psychiatric field can be useful during law enforcement activities especially in the case of offences triggered by emotions and special psychological or psychiatric conditions. We focused on criminal profiling of which the target is this very group of crimes. We reviewed the most important methods of criminal profiling and demonstrated the advantages of the clinical approach in relation of each. We did this using the most well-known psychiatric conditions by the criminal world: schizophrenia and personality disorders without attempting to present them exhaustively, as one study is far from sufficient for this goal. Needless to say, the knowledge of the criminal contexts of both classes of mental disorders is much broader than that has been presented here, and there are many other mental disorders deserve the attention of law enforcement. The introduction of these conditions to the criminal field should be the work of further publications.

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⁵⁰ Turvey, 'Criminal profiling'

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Innovations in Forensic Genetics

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The laboratories of the Department of Genetics use examinations to determine the human tissue/cell type origin, DNA profile as well as process bone and tooth samples from crime scenes and buccal swabs from individuals. The Department is currently involved in implementation of new methods to assist the investigating authorities in their investigations and further strengthening the admissibility of expert reports. The aim of these efforts is to handle degraded and latent small amount of DNA samples, successfully detect and statistically infer the minor component in complex “mixed” samples from multiple sources, and predict the eye colour, hair colour, skin colour and biogeographic origin of unknown individuals from crime scene samples. In recent years the increasing number of high-profile cases and the growing demand for examinations have posed challenges. The challenges have been addressed through code-based tracking and the implementation of a highly efficient and fast-processing automated multifunctional robot park. Overall, our goal is to increase examination capacity and reduce processing time in a cost-effective manner, thus optimizing the operation of the systems, concerning the ever-increasing number of cases.

Keywords: forensic genetics, multi-person mixtures, new methods

I. Introduction

The Hungarian Institute for Forensic Sciences (hereinafter referred to as the Institute) was established in 2017 through the merger of the Network of Forensic Sciences Institutes and the former Hungarian Institute for Forensic Sciences. The Department of Genetics including its predecessors has been conducting forensic genetic expert work since 1992. Our investigations aim to determine the origin of human tissue/cell types and human DNA-profiles from the samples received or specimens sampled by us. The majority of inquiries received by the Department come from police departments, with a smaller portion originating from prosecutor's offices and courts. Therefore, our clients and readers of our expert opinions are predominantly legal professionals and/or law enforcement officers. In this study, we attempt to provide an overview of the challenges of our departmental activities primarily intended for readers in the field of criminaltechnics.

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II. Background

A What is accreditation and what is it for?

The backbone of our institutional activities consists of numerous work processes that are accredited, quality management permeates these systems, making it essential to describe its central role. The 22nd paragraph of the 12/2016 (V. 4.) decree of the Ministry of Interior requires that our laboratory activities and related tasks have a broad accreditation horizon, which is certified by the National Accreditation Authority (NAH).⁴ To comply the MSZ EN ISO/IEC 17025:2018 complex quality management standard our processes such as: curriculum management, compliance with proficiency tests, supplier evaluations, investigation of non-compliances, corrective actions are needed.

The standard sets out the necessary criteria, which the National Accreditation Authority verifies and certifies that our activities meet the requirements of the standard. Quality assurance is only one aspect of the standard.

Back then, preparing for and then obtaining accredited status was a complex process. Even in an unchanged world, maintaining the status permanently would require continuous adjustment and renewal of the framework (for example assessment of suppliers, quality enhancement, integration of new experiences).

The framework has a preservation and integrative function, for example it can preserve and integrate individual experiences for example „masterstrokes” of expert competence and the otherwise relatively rare lessons of nonconformities (for example breakdowns, failures) that might otherwise sink into the drawer and be forgotten, thus building into a system the accumulated experience and knowledge from our large and changing pool of case experts, our significant case and sample numbers.

We believe that while continuously maintaining accredited status is no guarantee of best practice or infallibility, it inevitably creates and enhances a systemic internal commitment to quality, one that is organically embedded in the organisation.

The preservation of quality-managed status (as a constraint) by conspiratorial simulation of system outputs, by mimicking externalities - would require resource-intensive, irrational and risky duplications, “double-think” operations. We do not cover up errors and shortcomings that do occur, but seek to detect them and take measures to reduce or eliminate their recurrence. This is the so-called “*nonconformity management*”, where the root cause is identified, the defect is corrected and corrective action is taken to prevent recurrence.

B How can we synchronise our workflow elements with the attached documents and generated data?

The majority of the data generated through our processes is integrated into our independently developed and maintained Laboratory Information Management System software (referred as LIMS). Our LIMS became a more and more extended system, improving the effectiveness.

Our experts can assign new examinations through the network based on the stored data and can generate and complete even the most complex expert reports. If quality management is the spirit or the backbone in the organization then LIMS is the nervous system.

⁴ 12/2016, (V. 4.) BM rendelet para. 22

III. Overview

A *The Process and Theoretical Structure of Our Material Examinations*

Material examinations begin during the crime scene investigation when we can search for and presume the presence of biological material residues and secretions (for example, blood, semen) using chemical-based preliminary tests and forensic light sources (absorption, fluorescence), based on the characteristics of the crime scene or case documents. Not forgotten that unfortunately, some “*heuristics*”-“*cognitive bias*” will always be a part of this task. Further laboratory tests are then prescribed based on the received or recorded crime scene samples and the case documents.

The ultimate goal of laboratory examinations is the determination of the DNA profile, usually involving four steps.

(0) An optional zeroth preliminary step, which confirms the presence of human blood, saliva, or semen in the available sample material through the detection of tissue- and human-specific proteins.

(1) The first step involves the purification and concentration of DNA.

(2) The second step is the determination of the human DNA concentration in the purified sample.

(3) The third step involves the large-scale amplification of the specific features that make up the DNA profile using a biochemical chain reaction.

(4) The fourth step is the determination of the amplified features.

The basis for the second and third steps is the “*polymerase chain reaction*”, which earned half of the 1993 Nobel Prize in Chemistry.⁵

In case of the reference samples (from persons) the entering point is the 3rd step -so this procedure is called “*direct amplification*”.

In conclusion our examination process is multi-stage, contains multiple entering and endpoints and contains multiple feedback loops. Results obtained from steps 2 and 4 may justify the repetition of steps 1, 2-4, potentially with modified parameters.

- As our samples progress through the examination process, they become more abstract and unique from an informational perspective (unique DNA concentration and profile) at the same time they become more uniform in their material and physical properties. The physical products are clear DNA extracts with the same volume and pH, regardless of the specimen.

B *The Spatial Structure of Our Material Examinations*

We have to carry out the steps before and after the amplification of features in a spatially separated manner.

(i) *Our low-copy-number (and mitochondrial) DNA laboratories*

We focus on processing „latent” samples that can be presumed to contain human nuclear DNA in small quantities based on their external characteristics and case documents, such as bone or tooth origin. The proportion of samples entering the laboratory has significantly increased over the past decade, with currently around 9,500 samples per year, accounting for roughly 60 per cent of the processed on-site samples.

For DNA purification from bone and tooth samples originating from unknown individuals, there are spatial and temporal separations. Currently, there are two liquid nitrogen-cooled „bone mills” available for sample processing. DNA isolation from powdered samples is carried out on a *semi-*

⁵ <https://www.nobelprize.org/prizes/chemistry/1993/summary/>

automated robot using factory-made chemical kits, and a manual organic extraction method is also available if needed.

(ii) *Our high-copy-number laboratory*

We determine the tissue/cell type origin of approximately 1,400 on-site samples and attempt profile analysis on around 3,700 on-site and 2,100 reference samples each year. To meet the increasing demand for examinations, the department has taken several optimization and development steps (as we discuss below) and introduced new methods.

(iii) *Use of high-capacity, automated systems*

Due to the increased demand for examinations, the laboratories use high-capacity, automated systems for DNA purification and amplification reactions. They are currently replacing aging robots with discontinued product support and planning future expansions in this area.

The testing of new DNA purification and quantification robots became available for the Institute in recent months and has been successful. We have emphasized the need for the devices' settings to be compatible with our currently used accredited procedures (for example, sample tube volume, DNA quantification, and requirements for the chemicals used in amplification), allowing easy integration into our system.

(iv) *Transition to half-volume testing*

Over the past few years, both laboratories have gradually introduced the so-called half-volume testing. The use of commercial, manufacturer-validated DNA profiling kits is performed at half the recommended volume. The clear advantage of *half-volume testing* is the halving of DNA sample and chemical consumption, allowing for more examinations to be conducted on the same DNA samples and significant cost savings (approximately 50 per cent) in the price of our most expensive chemicals.

Validation of the method with various tests has confirmed the reliability and performance of our half-volume procedures under different conditions.⁶ We have found that the kits meet the manufacturer's recommendations and are suitable for routine examinations as well.

Half-volume profiling is an optimal compromise.⁷ It achieves higher information density per unit of sample volume, while full-volume profiling is still available in our system.

(v) *Transition to “direct amplification”*

In case of the reference samples the oral swabs' entering point to the laboratory workflow is the 3rd step, so with *direct amplification* there is no further need for purification and concentration of DNA (1st step) or determination of the human DNA concentration (2nd step). So direct amplification is cost effective and time saving for oral swabs.

⁶ Eszter Lőrincz, Judit Zelei and Attila Heinrich, 'Half-Volume Optimization in Typing of Low Template Samples with PowerPlex Fusion 6C PCR Amplification Kit', poster presentation, XX. *Genetikai Műhelyek Magyarországon*, in english: XX. "Genetical Workshops in Hungary" conference, Szeged, (2021).

⁷ Almohammed E. and Hadi S., 'Internal validation of GlobalFiler™ kit using reduced reaction volume', *Forensic Science International: Genetics Supplement Series*, 7(1) (2019) 878–83.

IV. Objectives and solutions

The efforts are centered around challenges such as:

A Objective I

Improving the efficiency of DNA profiling from samples containing small amounts of human DNA.

Obstacles encountered: on the one hand, crime scenes that are difficult to search visually or with classical instrumental and chemical techniques often have little human biological material residues - thus human DNA. On the other hand, the initially ideal amount of DNA released into the environment or present in the corpse starts to decay, so the DNA chains and the stored information also becomes increasingly fragmented - thus increasing the proportion of DNA chains - code sequences that are damaged and useless for our investigations.

By the time they reach our laboratory refrigerator, DNA chains are exposed to a wide variety of environmental influences that can damage and alter their structure. Examples include high temperatures, ultraviolet radiation, mould growth, bacterial activity, formalin soaking, the use of corrosive chemicals, boiling bones in bleach, various dactyloscopic reagents, superglue-cyanoacrylate fuming.

Improperly chosen handling and cleaning laboratory techniques can also damage and shorten DNA chains. Furthermore, long-term storage can also damage DNA.

The susceptibility of specificities to degradation varies due to their different DNA lengths so degradation events can hinder the amplification of the specificity to an exacerbating extent as the segment length increases.

Our Solutions:

(i) Lowering Quantitative Limits

Introduction of novel, more sensitive, and lower DNA input-demanding tests that can repeatedly determine DNA profiles from samples with limited quantities of human DNA.

(ii) Improving DNA Quality Limits

Improving DNA Quality Limits: Introduction of DNA profiling methods that require shorter intact DNA segments, such as next-generation sequencing or the use of two specific, complementary six-colour channel profiling tests (NGM Detect - GlobalFiler).⁸

(iii) Development of a Degradation Model

We have developed a *degradation model* to test and find the best testing methods for degraded samples. This model involves creating various sample standards of known degradation levels enzymatically and through ultrasonic fragmentation, starting from well-preserved, known-person DNA samples.⁹

⁸ Tamás Cseppentő, Katalin Rádóczy, Judit Zelei, Norbert Valis, István Aladzcity and Attila Heinrich, Optimization of two Forensic Multiplex PCR Kits in the Typing of Low Template & Degraded Samples, poster presentation, XX. *Genetikai Műhelyek Magyarországon*, in english: XX. "Genetical Workshops in Hungary" conference, Szeged, (2021).

⁹ Gábor Bihari, Székely Éva and Dr. Heinrich Attila, 'DNS Degradációs Modell Fejlesztése Bomlott Minták STR Alapú DNS-Profil Meghatározásához', in english: „Developing a Degradational Model for the Profiling of Degraded Samples”, poster presentation, XX. *Genetikai Műhelyek Magyarországon*, in english: XX. "Genetical Workshops in Hungary" conference, Szeged, (2021).

(iv) *Multi-Colour Markers*

Certain characteristics in the DNA profile can now be marked with five to seven different dyes in new-generation chemical kits (plus one colour reserved for “*Internal Lane Standard*”). During determination, these characteristics are detected on five or seven colour channels of the instrument. A testing system with multiple dye markers enables the concurrent determination of multiple characteristics, with a higher proportion of these being shorter chain lengths that are more resistant to degradation.

Analogy to trains: Think of the obtained raw DNA profile results as a few trains, with the characteristics being sorted into carriages according to their DNA chain length in the system. The shorter ones are placed in the front. The exposure of each carriage to damage is proportionate to its distance from the locomotive. There will always be „rear carriages” in the trains. However, we can choose to transport the characteristics in different, colour-coded trains to avoid mixing. With this logistics approach, more of the valuable cargo typically remains intact, usually the shorter characteristics in the front carriages. Another advantage is that various characteristics, assumed to be the same size in the analysis, can be transported in an identifiable manner due to different colour markings.

(v) *Our Next Generation Sequencing*

More precisely, *Massively Parallel Sequencing* goes deeper in resolution than our traditional DNA profiling tests; it provides additional information by determining DNA at the code level and examining nine more genetic markers, thereby increasing the discriminatory power.¹⁰ The advantage of this method is that the characteristics under examination can be associated with smaller DNA fragments, which allows the method to work more effectively on degraded samples. According to the previous “analogy to trains” in this case there are no multiple rail carriages, each carriage/characteristic has its own locomotive.

In mixed - multi person samples another benefit is that, due to the DNA-code-level and massively parallel (up to 1000 times) reading, the characteristics of the minor component can still be determined even under shifted mixing ratios (till 1:19 ratios).

However, there are drawbacks to this method. Firstly, it is time-consuming, taking two to three weeks to complete. Additionally, it requires a significant amount of sample material, and the examination is limited to a maximum of 64 samples at a time. The cost of acquiring the necessary knowledge and equipment is also high. The establishment of a population database, as required for statistical calculations, is currently in progress, with the goal of analysing a population of 500 individuals. This will help determine the prevalence and composition of the examined characteristics within the population and assist in the identification process and result interpretation.

B Objective II

Distinguish between conditions that cause the DNA profile to diminish.

Problem: A fading profile towards longer DNA stretches may be caused not only by damage to DNA chains but also by substances that inhibit the amplification reaction (for example haematin from blood, humic acid from soil, metal ions). So the symptom - a fading DNA profile is not clearly inferred from the underlying cause.

⁹ Balázs Kocsis, Mátrai Norbert and Egyed Balázs, 'Forensic Implications of the Discrepancies Caused between NGS and CE Results by New Microvariant Allele at Penta E Microsatellite', *Genes (Basel)*, 14(5), (2023), 1109.

And the cause is important because while inhibitors can be removed by purification of the sample or their input to the reaction can be reduced by reducing the sample input, there is no reliable way to upgrade degraded samples thus partial regeneration of degraded DNA chains in a „reconstructive” amplification reaction is not practical for us.¹¹

Our solution: The last generation chemistry kits we use, such as our kit for measuring human DNA concentration and our kit for degraded DNA profiling, allow us to assess two quality status indicators for samples. They allow the detection and thus the differentiation of two things; the degree of DNA degradation in the sample and the degree of inhibition resulted by the presence of substances that inhibit the profiling.

C Objective III

Detect spermatozoa even in samples containing only in minimal amount.

Problem: The detection of spermatozoa is a cornerstone of our expertise in the processing and evaluation of semen samples, but they are difficult to effectively detach from various cloth fabrics and can be obscured by other cellular components and debris during microscopic evaluation.

Our solution: SPERM HY-LITER™, which is about to be routinely introduced, is a new method specifically designed for forensic DNA laboratories, based on antibody proteins that specifically bind to human sperm heads. These proteins are labelled with a dye that fluoresces at a different wavelength when illuminated by a light source. The exciting wavelength filtered out from the optical path so the sensitivity of the method is so high that a single shining spermatozoa head can be easily and quickly identified on an apparently darkened microscope slide.¹²

D Objective IV

„In silico veritas” In the case of profile-matching, to estimate the probative value as reliably and accurately as possible, to reduce cognitive bias and to communicate the result in a comprehensible way.

Problem 1: Although single source, full match can be easily managed with the simple formula of Bayesian hypothesis testing (knowing the population frequency of each genetic marker), however the phrase „full match” may give more weight than high numerical probability value to a layperson's good-faith teleological (purpose-built) interpretation.

Our solution: Use a ladder-like verbal scale to place/classify the statistical results, where the rungs of the ladder are visually related to the number of inhabitants (small/large town, Hungarian country, humanity).

Problem 2: A large part of the real-world profiling is incomplete due to low DNA concentration or decomposition and multiple origins. The detection intensity of the features can range from extremely low to high.

Reason: Even in profiles that can be considered as single-person originated, extra genetic markers can emerge (“drop-in”) due to the sensitivity of the analysis and the sample’s past. They can also randomly disappear (“drop-out”) due to expected markers being lost when the sample has a low DNA content or is in a degraded state. These effects which distort profile matching can be particularly pronounced a multi-person complex profile.

¹¹ Edward M Golenberg, Ann Bickel and Paul Weihs, 'Effect of Highly Fragmented DNA on PCR', *Nucleic Acids Research*, Volume 24, Issue 24, (1 December 1996), Pages 5026–33.

¹² Takamura A, Watanabe K and Akutsu T, 'Advanced forensic validation for human spermatozoa identification using SPERM HY-LITER™ Express with quantitative image analysis', *Int J Legal Med*, 131(4), (2017), 933–39.

Analogy to HIFI amplifiers: Think of the profiling process as a high gain biochemical amplifier on high volume so the originally small signal inputs as whispering may disappear, in addition noise level-the buzzing is increasing.

Our solutions:

(i) *Predefined detection thresholds*

The detection thresholds for signals that can be accepted as genetic markers are defined by validated standard parameters.

(ii) *Compensating the distorting effect of randomness*

The „drop-out” and „drop-in” of genetic markers, in other words the distorting effect of randomness, is compensated by repeatedly determining the DNA profile and evaluating the results in aggregate.

(iii) *Taking into account the distorting effects of randomness*

To evaluate the expert/software-detected profile mixtures, a so-called „probabilistic” software statistical evaluation is used, which takes into account the chances of random „drop-out” and „drop-in” events.

The second and third generation statistical software used for our calculations take into account the possibility of the „drop-out” and „drop-in” of genetic markers, and these events have a significant lowering impact on the result of the calculation.

Second-generation statistical software only takes into account the type and frequency of the characteristics included in the calculation within the population so they referred as a „qualitative model” based software.

In addition, with the third generation of more advanced software measures intensity values of the detected characteristics are also included in the analysis so they referred as „quantitative model” based software.

The programs estimates the proportions of contributors (known and unknown persons) in the hypothesized crime sample based on the resulting intensity values of several features in the profile, and then compare the fit between the expected values from the model constructed with respect to the proportions and the measured values - the more inaccurate the observed fit, the lower the resulting probability value, and, beyond a certain level of discrepancy in the fit, it gives a warning or an indication that the modelling has failed.

(iv) *Implementation and verification of a state-of-the-art quantitative software*

We have deployed and verified one of the state-of-the-art quantitative forensic genetic software packages (DNAXs, Netherlands Forensic Institute) available, which is under continuous development and support.^{13;14} We have also verified two additional free tools (EuroForMix, EuroForMix Rep). Based on our experience, the new software usually gives on the one hand orders of magnitude higher probability values for real-based profile matches by calculating intensity

¹³ Füredi Sándor 'Kvantitatív statisztikai modellű személyazonosító szoftverek verifikálása a magyarországi bűnügyi DNS-vizsgálatokhoz', in english: „Verification of some Human Identification Software with Quantitative Statistical Model for Hungarian DNA Tests”, poster presentation, XXII. “Genetikai Műhelyek Magyarországon”, in english: XXII. „Genetical Workshops in Hungary” conference, Szeged, (2023).

¹⁴ Corina C G Benschop, Jerry Hoogenboom, Pauline Hovers, Martin Slagter, Dennis Kruijs, Raymond Parag, Kristy Steensma, Klaas Slooten, Jord H A Nagel, Patrick Deltjes, Vincent van Marion, Heidi van Paassen, Jeroen de Jong, Christophe Creten, Titia Sijen and Alexander L J Kneppers, 'DNAXs/DNAStatistX: Development and validation of a software suite for the data management and probabilistic interpretation of DNA profiles', *Forensic Sci Int Genet*, 42, (2019), 81–89.

values, and on the other hand, it often provides a strong support in the exclusion from suspicion of close relatives of the real, often unknown, contributor in multiple person profiles, who therefore have a similar DNA profile.

(v) *Improved infographic presentations*

An added benefit that our software package makes it much easier and quicker to review complex cases and complex profiles with its improved infographic presentations of results.¹⁵

(vi) *Increased computational demands*

Significantly increased computational demands result in long runtimes, our computing infrastructure is in progress.

(vii) *Regularly informing the relevant ministry about the emerging potential of the available methods*

Massively searching of complex DNA profiles that cannot be broken down into components is not allowed under national legislation, but from a technical point of view such searching would be possible, for example, by implementing a DNA database searching module of the software (SmartRank).

Apart from the legal constraints, from a purely technical point of view, in principle, an invaluable amount of investigative intelligence information suitable for further processing could be extracted from the entire domestic criminal DNA profile dataset by searching complex profiles and listing statistically plausible relationships of descent. Therefore, the Hungarian Institute for Forensic Sciences regularly informs the relevant ministry of the potential of the available professional tools.

E Objective V

Follow-up of samples across the full range of tests.

Problem: human tolerance for monotonicity is finite, error is low probability but inevitable, the theoretical possibility of sample substitution cannot be completely excluded on the basis of the paper trail of samples.

Our solutions:

(i) *Exercising the “four eyes principle”*

Many of the manual errors resulting from human error can be avoided and filtered out by using the „four eyes principle” and retrievable visual and video documentation and by repeating and robotising processes.

(ii) *Building automated control, barcode based checkpoints and sample tracking to the manual workflow*

Human error can be prevented through automated controls, for example some of our equipment requires scheduled maintenance and bar-coded scanning of chemical pack expiry dates.

In our workflows, we use barcode printers to mark unmarked tubes for sample confirmation and have implemented a barcode reader system to track barcoded sample tubes.

We incorporate software-assisted, barcode-validated verification steps into our manual workflow, so that barcodes on the sample tubes have to be scanned during the process.

¹⁵ Corina CG Benschop and Sijen T, 'LoCIM-tool: An expert's assistant for inferring the major contributor's alleles in mixed consensus DNA profiles', *Forensic Sci Int Genet*, 11, (2014), 154–65.

F Objective VI

Improve the substantive accuracy and clarity of expert opinions.

According to Kertész (2004) “The legal practitioner uses an expert because he needs special expertise to understand the issue and finally receives an expert opinion which cannot be interpreted without special expertise.”¹⁶

An obstacle has arisen: Our tools and equipment are calibrated and validated, our working procedures are validated and accredited, but the expert opinion resulting from the results obtained has to be finalised by the experts - experts cannot be accredited. There could be serious differences in the interpretation of the results, especially in the wording.

Our solutions:

To prevent typing errors and inattentiveness in the opinion, we use two automations;

- (i) *We have created a general pro-forma opinion body*
- (ii) *The specific characteristics of the case are incorporated to the proforma*

These are: case identification numbers, assignor's name, automatically generated result tables containing a number of measured, validated values. Furthermore the system recognises certain ranges of values - relevant text templates are incorporated.

- (iii) *Proofreading the document*

The effects of language bias can occur on both the expert's and the reader's sides, so we have our colleagues proofread the completed expert opinion. We incorporate the experience of our hearings and external feedback into the proofreading feedback and automatic templates.

- (iv) *Providing recommended formulations for specific cases*

For specific cases that cannot be detected by automation, we also provide recommended formulations.

Challenge: There is a growing need for statistical evaluation at higher levels of interpretation.

In the five-tier hierarchy of forensic hypothesis formation, our current activities extend up to the second level, which means we investigate hypotheses and performing calculations from the 1st „sub-sub source level” (individual profile components in mixtures) up to the 2nd „sub-source level” (characteristics defining the complete DNA profile).

At the 3rd „source level” (DNA quantity, degradation degree, laboratory contamination potential, visual appearance of the crime sample, preliminary test results) we report on the ground of the results -no statistical assessment involved.

Despite the areas of primary interest for most clients bounded to the 4th „activity level” and the 5th „offence level” we are not evaluating hypotheses at these levels of activity.¹⁷

„The mistaken idea that answering the ‘who’ question, based on DNA profiling, is equivalent to answering the “who did it” question is widespread.” – Sheila Wills (personal communication).¹⁸

¹⁶ Imre Kertész in *Kriminalisztika*, (ed. Bócz Endre), BM Kiadó, Budapest, vol. I, (2004), 225.

¹⁷ Duncan Taylor, Kokshoorn B and Biedermann A 'Evaluation of forensic genetics findings given activity level propositions: A review', *Forensic Sci Int Genet*, (2018 Sep), 36, 34-49.

¹⁸ *Ibid.*

Emerging Response:

We closely follow the relevant results from the international literature, participate in related seminars, but as of now, we have not conducted statistical likelihood assessments regarding the upper three levels. The reasons for this limitation are the conservative nature of our field, the complexity of activity level hypothesis systems, the relatively young concept, the parameters involved in the equations requiring case simulations, cataloged observations, literature collections, and the need for specialized expertise in conducting calculations, which require time and careful consideration. Another difficulty that clients should have to formulate their questions about activity level very precisely and it can not be answered during a hearing.

Our activities are limited to the first three levels (1, 2, 3), and the laboratory processes associated with them are all validated and yield numerical or positive-negative results. The involvement of expert interpretation at these levels provides relatively little room for misinterpretation when a well-prepared expert interprets the results.¹⁹

G Possibility

Criminal phenotyping: new generation sequencing can be used to investigate characteristics that are linked to the so-called „biogeographical” origin, as well as those that are likely to be associated with certain external characteristics of the person, such as eye colour, hair colour, skin colour.²⁰ These can be complemented by the study of methylation patterns on DNA chains that change as a person ages, allowing an approximate determination of age from certain body fluids. The European *VISAGE (VISible Attributes Through GENomics) Consortium*²¹ offers chemical packages and support for all three questions, and we have the equipment and software to perform the tests, so VISAGE technology could be implemented in a year or two with explicit legal regulation.

V. Summary

The backbone of our activity is the accredited process system, whose documentation, the laboratory procedures and results are also managed by our extended Laboratory Information Management Software. These systems represents great value in the organization. Methods have been developed and implemented to differentiate and adequately treat a large number of different types of samples (Sperm HyLiter™, Next Generation Sequencing, Degradation Model). Cost-effectiveness has been significantly improved by the introduction of the *half-volume amplification* and the *direct amplification* procedures. Sample processing steps are monitored and controlled by barcodes, and increasingly by high throughput automated biorobots. From the detected profile matches we assess the probative value of evidence by extended quantitative model based state-of-the-art statistical software. We strive to minimize linguistic distortion and cognitive bias in the assessment and the communication of the results. In addition to the methods we use routinely, we also carry out scientific work and strive to monitor developments in our increasingly diverse field of expertise to implement the relevant techniques at a later stage.

¹⁹ Amy M., Jeanguenat, Bruce Budowle and Itiel E. Dror, 'Strengthening Forensic DNA Decision Making Through a Better Understanding of the Influence of Cognitive Bias', *Science & Justice*, 57, 6, (2017), 415-20.

²⁰ Gabrielle Samuel and Barbara Prainsack, 'Forensic DNA phenotyping in Europe: Views “on the Ground” from Those Who Have a Professional Stake in the Technology', *Critical Studies of Contemporary Biosciences* 38, no 2 (2019), 119-41.

²¹ <https://www.visage-h2020.eu/#about>

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Experience with Cybercrime in the Environment of the Police of the Czech Republic – the Police of the Czech Republic and Artificial Intelligence

Martin Bohman,¹ Oldřich Krulík,² Marie Mašková³, Lenka Jiráťová⁴

The article firstly describes the challenges, related to the cybercrime in the environment of the Czech Republic, including the feedback, which came from the specialized questionnaire with more than 1,400 respondents (police officers). Second part of the contribution is trying to describe the experience of the Police of the Czech Republic with artificial intelligence (including relevant security research project and other visions).

Keywords: cybercrime, artificial intelligence, research, survey, Czech Republic.

I. Introduction

The article firstly describes the challenges related to the cybercrime in the environment of the Czech Republic, including the feedback that came from the specialized questionnaire with more than 1,400 respondents (police officers). Their suggestions are carefully studied by the police force management and result in organizational and technical changes. The second part of the contribution is trying to describe the experience of the Police of the Czech Republic with artificial intelligence (including relevant security research projects and other visions). Education of police officers and preventive communication with the public is not a side of attention.

II. Method

The key methods used in the text include the annotated use of registered crime statistics in the Czech Republic, as well as the conclusions of research with more than 1,400 respondents, a police officer who took place in July and August 2022. The third source of information is detailed descriptions of research projects, which she entered and whose conclusions are used by the Police of the Czech Republic - in chronological order. The aspect of police education is mentioned separately, not only with regard to the rapidly emerging issue of artificial intelligence. It is thus a kind of primary data that other people interested in the issue can use as a springboard in their possible follow-up research.

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III. Cybercrime in the Environment of the Police of the Czech Republic

The very term "cybercrime" (computer crime etc.) in the environment of the Czech Republic is not always perceived in a completely homogeneous way.

- For the purposes of this study, it is firstly possible to refer to the criminal offenses regulated by Act No. 40/2009 Coll., Criminal Code, as amended, committed in relation to data (stored information): Unauthorized access to a computer system and information medium (Section 230); unauthorized access and damage to the record in the computer system, acquire and holding of the access device and password (Section 231); Damage to the record in the computer system and on the information medium and interference with the computer equipment due to negligence (Section 232).
- Secondly, there are criminal offenses regulated by Act No. 40/2009 Coll., On the Criminal Code, as amended, in which the computer is a means of committing them: Pornography dissemination (Section 191); Production and other handling with the child pornography (Section 192); Establishing illicit contacts with a child (Section 193b); Infringement of copyright, rights related to copyright and rights to the database (Section 270); Defamation of a nation, race, ethnic or other group of persons (Section 355); Incitement to hatred against a group of persons or restriction of their rights and freedoms (Section 356); Dissemination of an alarm message (Section 357); Defamation (Section 184); Blackmail (Section 175), and many more.

In relation to the topic, it is possible to make other observations of a general or current nature:

- It is a part of crime with a considerable latency, where the police probably obtain information only about a small part of the total volume of committed acts.
- This part of criminal activities has risen despite the coronavirus situation.
- The coronavirus period was also typical for the penetration of teleconferencing applications (Teams, Zoom and others) to obtain internal information (to a lesser extent, this was also related to the effort to obtain pornographic material).
- Cyber-attacks on medical facilities and other institutions were also recorded (ransom for unblocking of encrypted data). An example could be the blackmail of the Olomouc municipality /regional capital/ in May 2021, an attempt to raise USD 100,000).

Cybercrime and other crime in cyberspace is in practice divided within the framework of criminal statistics as follows (see Table 1, Table 2 and Figure 1):

Table 1: Cybercrime and other crime in cyberspace in the Czech Republic, general view, years 2017, 2021, 2022 and 2023 (Police of the Czech Republic Statistics).

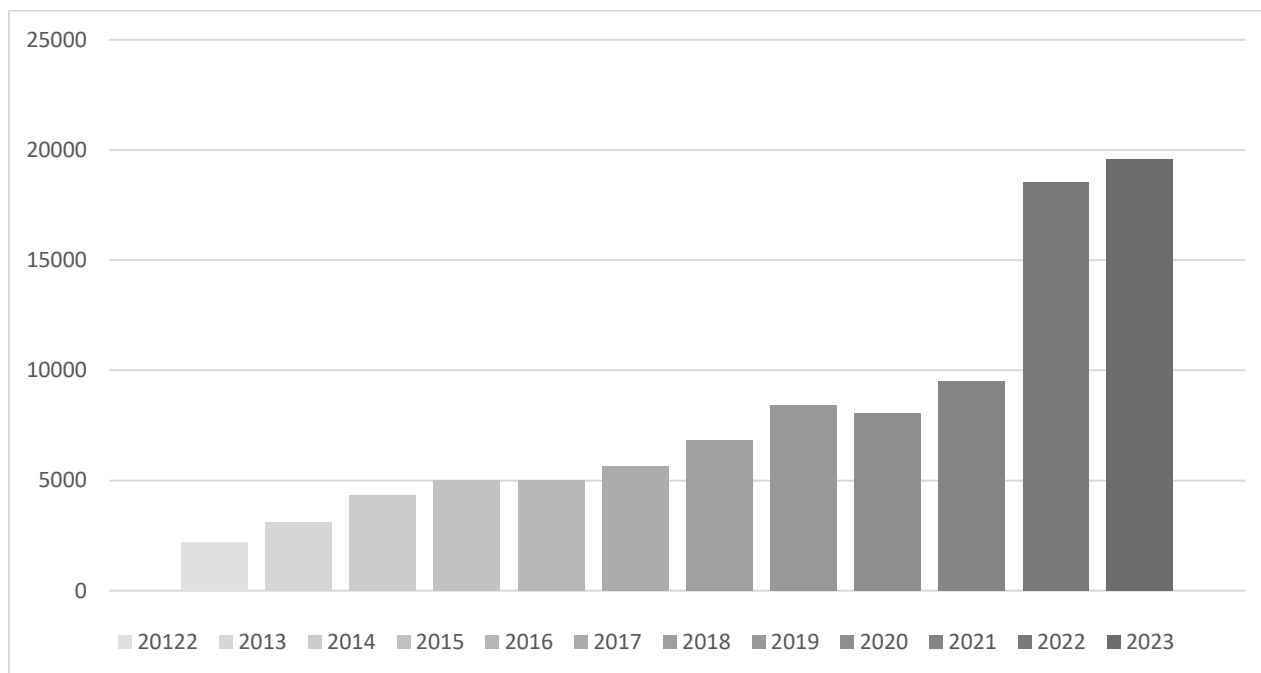
	Year 2017	Year 2021	Year 2022	Year 2023
Part of general crime	2 967	6 010	13 898	15 870
Part of economic crime	2 475	3 278	4 389	3 312
Part of remaining crime	211	226	248	256
Part of war and unconstitutional crime	1	1	7	10
Total cybercrime	5 654	9 518	18 554	19 592
% of total crime	2,79	6,21	10,20	10,80

Table 2: Cybercrime and other crime in cyberspace in the Czech Republic, individual cases, years 2021 and 2022 (Police of the Czech Republic Statistics).

	Cases 2021	Cases 2022	Cases 2023
fraud (of a general nature)	4 087	7 727	8 495
unauthorized acquire, forgery and alteration of means of payment	500	4 283	5 515
unauthorized access and damage to the record in the computer system, acquire and storage of the access device and password	1 682	2 575	1 687
child pornography and child abuse	500	629	546
infringement of copyright, copyright-related rights and database rights	344	564	271
credit fraud	645	527	632
fraud (of an economic nature)	381	407	359
extortion	173	316	406

Table 3 and Figure 1: Cybercrime and other cybercrime: Statistics for the years 2012 to 2023⁵

Year	2012	2013	2014	2015	2016	2017
Total cybercrime	2 195	3 108	4 348	5 023	4 990	5 654
Year	2018	2019	2020	2021	2022	2023
Total cybercrime	6 815	8 417	8 073	9 518	18 554	19 592



⁵ Source: Police of the Czech Republic Statistics

Picture 1: Examples of campaign visuals "Scammers Impersonate Your Bank"⁶



IV. Police of the Czech Republic – Cybercrime Survey

With regard to mapping the situation within the Police in the Czech Republic, there is interesting survey that took place in July and August 2022. The issue can be generalized into 12 questions. There were more than 1,400 respondents (police officers).

1) What training courses have you finished or would you recommend to colleagues?

- Courses of the Police Academy of the Czech Republic in Prague.
- Courses at the level of district units, regional police directorates, or part of instructional methodical training dominate – apparently with very diverse form and content.
- Around 7 % of courses are taking place with some international element (CEPOL, Central Europe Police Academy, cooperation with neighbouring countries).
- This aspect would be better solved by a certain intranet discussion thread, where experiences about the quality of training and other educational events would be shared, as well as a notification that a certain course or training is taking place.

2) What other cybercrime training would you welcome in the future?

- "Documenting criminal activity and securing evidence" (53 %).
- "Operational penetration of cyberspace" (24 %).
- "Securing funds – virtual currencies" (9 %).
- The combination of several topics and other issues is also subject of interest.

3) How do you perceive current trends regarding the cybercrime in the Czech Republic?

- The whole agenda will be significantly more serious; the number of reported cases begins to exceed "traditional" (offline) crime (47 %).
- Social engineering (15 %), fraud with use of the cryptocurrencies and other "investments" and so-called "bazaar fraud" are significant.
- It has been repeatedly said that the police force is generally lagging behind the criminals in this fight.

⁶ Source: Police of the Czech Republic

4) What specifics of the cybercrime do you perceive with regard to economic crime?

- The prevailing opinion was that law enforcement authorities are lagging behind in all of the aspects of the cybercrime; the Police of the Czech Republic need a **completely different organizational framework in this regard** (17 %).

Regarding specific trends, the respondents said that they perceived the most visible:

- Boom in fraudulent „investments“ in cryptocurrencies etc. (11 %).
- The need for closer cooperation with the banking sector. (11 %).
- The international element of the issue and thus its low clearance level (10 %).
- The need for constant public awareness or education (9 %)..
- Fraud is a crucial phenomenon, including so-called bazaar fraud (4 %).
- Traditional challenges are attempts to break into the internet banking (4 %).
- The agenda is highly bureaucratized (4 %).

5) What specifics of the cybercrime do you perceive with regard to vice crime?

- Around 42 % of respondents is not investigating this type of a crime.
- Of the remaining answers, education is perceived as pivotal, in relation to both children and adults (21 %).
- Explicit content is practically impossible to avoid in the current set-up of society (5 %).
- The potential for various forms of extortion is also important (6 %).
- About 2 % of respondents perceive the topic as the domain of less technically proficient criminals, or with less social significance than in the case of „materially-motivated“ crime.

6) What specifics of the cybercrime do you perceive with regard to drug crime?

- Around 64 % of respondents is not investigating this type of a crime.
- Regarding the remaining answers, the technical advantage of the perpetrators is perceived as a crucial aspect (59 %).
- This segment of crime is also moving into cyberspace (21 %).
- Abuse of delivery services or the Czech Post for transporting drugs to a customer is not an exception (3 %).

7) What aspects of the cybercrime do you encounter most in your practice?

- Fraud in general is a phenomenon where the perpetrator uses various techniques to achieve his or her objective. The most common sub-variants include bazaar scams, romance scams, bogus banker, "investment" etc. (37 %)
- Efforts to obtain sensitive data by technical means are less frequent (10 %).

8) Which area of the cybercrime do you personally consider to be the current crucial challenge?

- Crimes related to children (child pornography and attempts to establish illicit contacts with children – 47 %).
- Fraud (15 %).
- Other forms of property crime (8 %).
- Hate crime (7 %).
- Various forms of extortion (5 %).

9) What important tools do you possibly lack as police officers?

- Efficient analytical tools (51 %).
- Cover internet connection (21 %).
- Hardware equipment (20 %).
- Fast connection (8 %).

There is also call for de-bureaucratization, including the flexibility of searching in relevant databases or reduction of existing technical restrictions at workplaces.

10) What are the main challenges in detecting and investigating of this type of crime?

- Staffing and organizational changes (21 %).
- Technical equipment (19 %).
- Methodical coverage of the topic (19 %, also through external suppliers, etc.).
- Education and training (16 %).
- Modification of the legal framework (15 %).

11) What topics would you recommend focusing on cybercrime prevention?

- The need for an all-encompassing campaign, based on real cases of today (42 %).
- Cooperation with schools, campaign aimed at children (8 %).
- Activities, cooperation with banks, ideally also co-financed by banks, prevention of misuse of internet banking (7 %).
- Part of the public is "unteachable", resistant to any campaign.

12) Add anything else you think would be helpful in this area.

- Necessity of comprehensive training of police officers (19 %).
- Call for an overall **different organizational approach** regarding the fight against cybercrime within the police force (14 %).
- Necessity of personal strengthening of the agenda (8 %).
- Continuous education towards the public (8 %).

V. Artificial intelligence as a security topic for the European Union and other international organizations⁷

In 2019, the European Commission created a White Paper on Artificial Intelligence,⁸ with an emphasis on the ethical implications of the topic. At the same time, debates among the European Union Member States on the possible future direction of this issue were started or renewed. During the same year, the European Union's Directorate-General for Home Affairs, in cooperation with the European Union's member states, organized three workshops⁹ that enabled states to identify topics of interest and key challenges in the field of artificial intelligence, such as aspects related to data management and protection of (personal and other potentially sensitive) data.

In February 2020, the White Paper on Artificial Intelligence¹⁰ was adopted as part of the European Union's Digital Strategy.¹¹ The White Paper highlights the importance of ensuring that security meets the demands of the digital age and is able to strengthen technological independence in the relevant area. In this context, it was found necessary to use the potential that the European Union's

⁷ Bohman, Martin and Oldřich Krulík. *Umělá inteligence jako bezpečnostní téma pro Evropskou unii a další mezinárodní organizace*. Mezinárodní bezpečnostní institut, 29 September 2021. <https://www.mbi.expert/pracovni-list-umela-inteligence-jako-bezpecnostni-tema-pro-evropskou-unii-a-dalsi-mezinarodni-organizace/>

⁸ Bílá kniha o umělé inteligenci. *Digi koalice*. <https://digikoalice.cz/bila-kniha-o-umele-inteligenci/>

⁹ Events about Artificial intelligence. *European Commission*. <https://wayback.archive-it.org/12090/20210727053425/https://ec.europa.eu/digital-single-market/en/newsroom-agenda/event/artificial-intelligence>

¹⁰ Bílá kniha o umělé inteligenci. *Digi koalice*. <https://digikoalice.cz/bila-kniha-o-umele-inteligenci/>

¹¹ Evropská strategie pro data. *Evropská komise*. 19 February 2020. <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1593073685620&uri=CELEX:52020DC0066>

Digital Strategy offers in the area of internal affairs. The Union continuously declares the necessity of maximizing the possibilities of financing of the related activities, including through the Digital Europe program.

March 2020 was marked by comments on the draft framework positions for the so-called Digital Package.¹² Specifically, the comments of the Czech Republic were mainly the following:

- Excessive over-regulation, which is perceived as an explicit security threat, must be prevented.
- The related regulatory framework needs to be conceived in general, without excessive technological details.
- A cautious approach to the regulation of artificial intelligence (related technologies) in the area of biometric identification, which is perceived as an area with a direct potential threat to human rights, is necessary.

In April 2020, the European Commission presented an updated Coordinated Plan on Artificial Intelligence and a Communication on Strengthening the European Approach to Artificial Intelligence, published together with the adopted draft Regulation on Artificial Intelligence. A detailed analysis of the issues related to the presented proposal of the Regulation on Artificial Intelligence is available in the related impact assessment report.¹³

In June 2020, Member States were invited to nominate experts to the Expert Group on Artificial Intelligence (the issue of the use of artificial intelligence in the field of law enforcement and police controls; in the field of asylum and border protection).¹⁴ The Czech Republic was in this regard represented by the representative of the Police of the Czech Republic (Department of Informatics and Information Technology Operation).¹⁵ The aforementioned expert group has held a number of expert meetings to date. Among others, the following topics were discussed:

- Reasons for the draft regulation of artificial intelligence; definition of artificial intelligence; typology of artificial intelligence according to its potential riskiness; related objectives of the European Commission in the field of internal affairs; main areas for high-risk applications of artificial intelligence for security forces, rules for the use of biometrics.¹⁶
- Data Science Framework.¹⁷

July 2020 is mentioned in connection with the following agenda (documents):

- Document, called Initial Impact Assessment: Artificial Intelligence – Ethical and Legal Requirements.¹⁸

¹² Evropská komise představila digitální balíček, včetně návrhů k umělé inteligenci a datům. *Úřad vlády České republiky*, 20 February 2020. <https://www.vlada.cz/cz/evropske-zalezitosti/aktualne/evropska-komise-predstavila-digitalni-balicek--vctne-navrhu-k-umele-inteligenci-a-datum-179763/>

¹³ Posouzení dopadů návrhu Nařízení o umělé inteligenci. *Ministerstvo financí České republiky*, 3 May 2021. <https://www.mfcr.cz/cs/soukromy-sektor/inovace-na-financnim-trhu/aktuality/2021/posouzeni-dopadu-navrhu-narizeni-o-umele-41759>

¹⁴ Umělá inteligence v oblasti vnitřní bezpečnosti. *Policie České republiky*, PPR-21570-2/ČJ-2021-990770.

¹⁵ Odbor informatiky a provozu informačních technologií. *Policie České republiky*. <https://www.policie.cz/clanek/odbor-informatiky-a-provozu-informacnich-technologii.aspx>

¹⁶ Babuta, Alexander and Marion Oswald. *Data Analytics and Algorithmic Bias in Policing*. Royal United Services Institute for Defence and Security Studies, 2019. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831750/RUSI_Report_-_Algorithms_and_Bias_in_Policing.pdf

¹⁷ Data Science and Criminal Justice. *Digi-Crim-Jus*, 6 July 2021. <https://www.digicrimjus.com/2021/07/06/data-science-and-criminal-justice/>

¹⁸ Umělá inteligence – etické a právní požadavky. *Evropská komise*, 2020. https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2020-3896535_cs

- Assessment List for Trustworthy Artificial Intelligence.¹⁹
- Trusted Artificial Intelligence Industry Recommendations.²⁰

An important event in November 2020 was a conference organized by the Council of Europe called Artificial Intelligence for Peace, Justice and Security (in which the Czech Republic participated – through the Department of Informatics and Information Technology Operation of the Police of the Czech Republic).²¹

In May 2021, document No. 8515/21 "High Risk Applications of Artificial Intelligence: Homeland Security Outlook" was released. The text proposes a separate legal framework for artificial intelligence in the field of internal security.²²

In July 2021, in the context of Slovenia's Presidency, the General Secretariat of the Council of the European Union organized a virtual conference "Artificial Intelligence Regulation – Ethical Aspects and Fundamental Rights Aspects".²³

The Ministry of the Interior of the Czech Republic announced on March 2021, two public security research competitions. Both concern applications of security technologies such as artificial intelligence, robotics, nanotechnology, laser technology and photonics. The research results are intended to help the components of the Integrated Rescue System of the Czech Republic. Public competitions are announced as part of the IMPAKT and SECTECH programs.²⁴

AMBIS University is the main researcher of the Technology Agency of the Czech Republic project "Artificial Intelligence and Human Rights: Risks, Opportunities and Regulation".²⁵ The aim of the project is to identify and evaluate risks and opportunities in the field of the relationship between artificial intelligence and human rights and to propose solutions for how related technologies could be developed, used and regulated so that they do not threaten human rights and, on the contrary, help its development and protection.

Activities and processes within the International Police Organization, Interpol, related to the issue of artificial intelligence, can be illustrated on the following schedule:²⁶

¹⁹ Assessment List for Trustworthy Artificial Intelligence for Self-Assessment. *European Commission*, 17th June 2020. <https://digital-strategy.ec.europa.eu/en/library/assessment-list-trustworthy-artificial-intelligence-altai-self-assessment>

²⁰ Policy and Investment Recommendations for Trustworthy Artificial Intelligence. *European Commission*, 2020. <https://wayback.archive-it.org/12090/20210728103937/https://digital-strategy.ec.europa.eu/en/library/policy-and-investment-recommendations-trustworthy-artificial-intelligence>

²¹ Conference on responsible AI for Peace, Justice and Security. *Council of Europe*, 19 November 2020. <https://www.coe.int/en/web/artificial-intelligence/-/conference-on-responsible-ai-for-peace-justice-and-security>
Council of Europe and Artificial Intelligence. Council of Europe. <https://www.coe.int/en/web/artificial-intelligence/home>

²² High Risk Artificial Intelligence Applications: Internal Security Outlook. *European Commission*, 12th May 2021. <https://www.statewatch.org/media/2407/eu-council-ai-internal-security-discussion-paper-8515-21.pdf>

²³ Virtual Conference on the Regulation of Artificial Intelligence, Ethics and Fundamental Rights. *Slovenia Presidency of the Council of the European Union*, 20 July 2021. <https://slovenian-presidency.consilium.europa.eu/en/news/at-the-virtual-conference-on-the-regulation-of-artificial-intelligence-ethics-and-fundamental-rights/>

²⁴ Ministerstvo vnitra vyhlašuje veřejné soutěže na umělou inteligenci, robotiku a kyberbezpečnost. *Ministerstvo vnitra České republiky*, 2021. <https://www.mvcr.cz/clanek/ministerstvo-vnitra-vyhlasuje-verejne-souteze-na-umelou-inteligenci-robotiku-a-kyberbezpecnost.aspx>

²⁵ Umělá inteligence a lidská práva: rizika, příležitosti a regulace. *Vysoká škola AMBIS*. <https://www.ambis.cz/umela-inteligence-a-lidska-prava-rizika-prilezitosti-a-regulace>

²⁶ Interpol. *Artificial Intelligence Observatory and Forum*. <http://observatory.ilaw.cas.cz/index.php/mezinarnodni-aktivity/interpol/>

- In November 2020, the 3rd meeting of law enforcement authorities for artificial intelligence took place. It is the embodiment of cooperation between Interpol and the United Nations Interregional Crime and Justice Research Institute. Elements of artificial intelligence in the Czech Republic was presented by the Reliéf project.²⁷
- A series of "Artificial Intelligence Virtual Training Rooms", designed to raise awareness of the issue among police officers (how artificial intelligence can impact police models and activities).²⁸

VI. Security Research in the Czech Republic, related to the police priorities with use of the artificial intelligence

Following pages are describing the most important variables, related to the security research projects in the Czech Republic, where artificial intelligence aspect were being used. In a very simplified model, it is possible to say, that artificial intelligence is (or will be) used in the analysis of data (big data), sound and image respectively.

A System for Text Analysis for the Needs of the Police of the Czech Republic (2017-2018)²⁹

The objective of the project was to implement a system that provides the following functionality for the environment of the Police of the Czech Republic:

- Automatic search for named entities and their relations (persons, companies, addresses, communication means, vehicles, accounts, weapons, drugs, important events etc.) including out-of-vocabulary entities (unknown names, addresses).
- Advanced full-text search with a specific support for Czech and English, capable of aggregating results according to identified named entities.
- Search for similar cases having the same nature or course and differing only in facts (such as date or offender names).

Researchers: Charles University, Faculty of Mathematics and Physics.

Funding: 1 010 000 CZK (42 000 EUR).

Results: Software for text analysis (morphological analysis, named entity analysis and summarization) and document search for needs of Police of the Czech Republic.

B Building and Verification Operation of the Cyber Threat Intelligence System (2017-2021)³⁰

The main objective of the project was to strengthen critical information infrastructure protection and reduce damage caused by cybercrime through the establishment of the effective detection, identification and prediction system of cyber threats and evaluation of cybersecurity incidents.

²⁷ Towards Responsible Artificial Intelligence Innovation. *United Nations Interregional Crime and Justice Research Institute*, 2020. <http://www.unicri.it/towards-responsible-artificial-intelligence-innovation>

UNICRI Centre for Artificial Intelligence and Robotics. *United Nations Interregional Crime and Justice Research Institute*. http://www.unicri.it/in_focus/on/unicri_centre_artificial_robotics

Táborský, Vladimír. Projekt „Reliéf“ na 44. evropské regionální konferenci interpolu v Praze. *Bulletin Národní protidrogové centrály*, 2016, No. 3, 43-46. <http://future-forces-forum.org/review/236.str.2-.pdf>

²⁸ Interpol Virtual Academy. *Interpol*. <https://www.interpol.int/How-we-work/Capacity-building/INTERPOL-Virtual-Academy>

²⁹ System for Text Analysis for the Needs of the Police of the Czech Republic. *Starfos*. <https://starfos.tacr.cz/cs/projekty/VH20172017023>

³⁰ Building and Verification Operation of the Cyber Threat Intelligence System. *Starfos*. <https://starfos.tacr.cz/cs/projekty/VH20172021022>

Researchers: CZ.NIC; CESNET.

Funding: 25 080 000 CZK (1 040 000 EUR).

Results: Three results, including Cyber Threat Intelligence portal, used for dynamic display of data from the incident database and is based on a client-server architecture with a three-tier architecture. The platform is able to generate events for the creation and subsequent sending of notifications about anomalies to the browser.

C Employment of Artificial Intelligence into an Emergency Call Reception (2019-2022)³¹

The projects investigated the deployment of artificial intelligence for the reception of emergency calls during crisis events with a voice chat-bot.

Researchers: Mining University, Technical University of Ostrava, Faculty of Security Engineering; GoodAI Applied Ltd.; Phonexia Ltd; SpeechTech, Ltd; Brno University of Technology, Faculty of Information Technologies

Funding: 28 938 000 CZK (1 200 000 EUR).

Results: 4 results, see webpage.

D Development and Testing of Algorithms for Predictive Behavioural Analysis of Persons Crossing the External Borders of the European Union (2018-2019)³²

The objective of the project was to increase the likelihood of timely detection and capture of the interest of the police and other administrative authorities, crossing the external borders of the European Union and the Czech Republic.

Researchers: Czech Technical University in Prague, Faculty of Information Technologies

Funding: 2 808 000 CZK (116 500 EUR).

Results: The summary research report contains a description of the analysis of the available data and their applicability for behavioural analysis of persons, a detailed description of the algorithms examined and an evaluation of their quality and scalability, not only the basic algorithms, but also their combination (ensembles).

E Complex Analysis and Visualization of Large-Scale Heterogeneous Data (2017-2020)³³

The main objective of the project was to create an integrated distributed system enabling complex analyses of heterogeneous data of large-scale - especially digital artefacts obtained under police investigations. This multidimensional visualization should provide multiple views over analysed data as well as information through interactive combination of annotated graphics (e. g. maps), graphs (statistical and relational), charts, time series, and other specialized visualization techniques.

Researchers: Masaryk University, Institute of Computer Technology

Funding: 13 941 000 CZK (578 000 EUR).

Results: Six results, including the computation subsystem software component used to process and analyse selected data. The visualization software component is an integral part of the system, significantly influencing both its analytical capabilities and user comfort.

³¹ Employment of Artificial Intelligence into an Emergency Call Reception. *Starfos*. <https://starfos.tacr.cz/en/projekty/VI20192022169>

³² Development and Testing of Algorithms for Predictive Behavioral Analysis of Persons Crossing the External Borders of the European Union; VH20182019034. *Starfos*. <https://starfos.tacr.cz/cs/projekty/VH20182019034>

³³ Complex Analysis and Visualization of Large-Scale Heterogeneous Data. *Starfos*. <https://starfos.tacr.cz/cs/projekty/VI20172020096>

F Lost Persons, Offenders Position Automated Prediction Tool (2018-2021)³⁴

The objective of the project was to streamline operational management and speed up the steps necessary to find the missing person as quickly as possible and to reduce the risk of life and health of these or other persons.

Researchers: Eago systems Ltd.

Funding: 33 306 000 CZK (1 380 000 EUR).

Results: Several results, including an automated tool for predicting the location of wanted or missing persons (offenders). The result represents highly automated tool enabling to systematise and accelerate and streamline the operational management aimed on search and find of missed or suspected person (or culprit).

G Integrated Platform for Analysis of Digital Data from Security Incidents (2017-2020)³⁵

The project deal with the experimental development of advanced methods and tools of network security analysis based on data mining, machine learning, visual analytics and their implementation as a forensic platform. The project outcome will be demonstrated using practical cases studies, namely, identification of P2P traffic, forensics analysis of mobile devices and investigation of Bitcoin incidents.

Researchers: Brno University of Technology, Faculty of Electrical Engineering and Communication Technologies

Funding: 16 746 000 CZK (694 000 EUR).

Results: About 68 results, including an integrated platform is a set of software and hardware tools for analysing various sources of information to extract artefacts that may indicate the presence of a security incident or are further used to identify such an incident or as evidence in an investigation.

H Tools and Methods for Video and Image Processing to Improve Effectivity of Rescue and Security Services Operations (2017-2020)³⁶

The project focused on research in advanced methods for image and video processing. The objective is to create a functional sample of a system that significantly improves effectivity of security and rescue forces intervention.

Researchers: Brno University of Technology, Faculty of Electrical Engineering and Communication Technologies.

Funding: 22 864 000 CZK (948 000 EUR).

Results: Several results, including:

- Software that enables automatic camera calibration using detected key points and their 3D correspondence.
- Sensing device for short firearms. It is a device that is composed of a u-ramp, Microsoft Kinect and two cameras that enable the acquisition of data for 2D and 3D data reconstruction of the scanned object, specifically short firearms.³⁷

³⁴ Lost Persons, Offenders Position Automated Prediction Tool. *Starfos*. <https://starfos.tacr.cz/cs/projekty/VH20182021039>

³⁵ Integrated Platform for Analysis of Digital Data from Security Incidents. *Starfos*. <https://starfos.tacr.cz/cs/projekty/VI20172020062>

³⁶ Tools and Methods for Video and Image Processing to Improve Effectivity of Rescue and Security Services Operations. *Starfos*. <https://starfos.tacr.cz/cs/projekty/VI20172020068>

³⁷ Snímačí zařízení pro krátké střelné zbraně. *Fakulta informačních technologií; Vysoké učení technické v Brně*. <http://www.fit.vutbr.cz/research/prod/index.php?id=553>

VII. Results

Regarding the fight against cybercrime, as well as possible uses of artificial intelligence by the Police of the Czech Republic, the following can be stated: It is necessary to continue in the processes that have already been started, for example regarding the use of sophisticated camera systems (face recognition, even for people who wear veils). It is also necessary to relieve police officers from tedious routine activities, like issuance of official decisions in relation to ever-repeating actions, for example regarding the traffic police. This task can be delegated to artificial intelligence and 90 % of the police officers who have been systemized to it so far can be transferred to some "field activities".

VIII. Conclusion

Cybercrime and other illegal activities in relation to cyberspace, as well as concerns about the massive misuse of artificial intelligence, present a continuous challenge for modern police forces, where there is a fine line between threats and opportunities. Police forces must monitor related developments and actively respond to them, including in the form of commissioning and using the results of security research. The education of police officers and efforts to educate the wider public – which may otherwise be even more exposed to sophisticated fraud than before – also play a role. The Police of the Czech Republic is not an exception with its ambitions and efforts in this regard – insofar as it welcomes the related relevant experience of foreign partners.

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The Importance of Intercultural Competence in European Agencies in the Field of Justice and Home Affairs

João Cabaço¹

The importance of intercultural competence in European agencies operating in the field of Justice and Home Affairs cannot be overstated. These agencies, characterized by their transnational nature and the presence of diverse cultures and ethnicities, require professionals who possess cultural sensitivity, awareness, and intercultural competencies to effectively carry out their roles. This study aims to analyze various dimensions of intercultural competence and understand how professionals perceive and value its significance. By fostering cooperation towards common goals, this research seeks to enhance the effectiveness of these agencies in multicultural environments.

European agencies require a specific stance of social and cultural learning due to their context and missions, where learning about others and intercultural communication become increasingly complex and challenging. Although we are constantly exposed to ideas and manifestations related to tolerance, peace, human rights, anti-racism, and equal opportunities, which are linked to the cultural diversity and priority missions of these agencies, we also witness daily the negative aspects such as violence and intercultural conflicts, expressed through prejudices, stereotypes, intolerance, racism, xenophobia, marginalization, exploitation, and social exclusion. Despite being "officially" banned in various services and public spaces, these problems continue to manifest themselves clearly and often without any form of control.

This research has an exploratory nature, as the object of study is not fully described or directly studied in European agencies. It raises several questions, including: What is the perception of the importance of intercultural competence and what differences exist among European agencies? Can the mission of each agency influence the response of its professionals regarding the importance of intercultural competence? Future research can explore various avenues, such as investigating the experiences of approximately 30% of employees who have felt culturally discriminated against within their respective agencies.

The objective of this article focuses on analyzing different domains of intercultural competence and the perceptions and importance that professionals in these organizations attribute to it, where everyone must cooperate towards a common goal. Our research presents recent and original data on the research object, which is not directly described or studied within the European Agencies. It reveals and describes internal phenomena within these agencies regarding the components of intercultural competence. We can consider intercultural competence as a process of development and adaptation to multiple contexts within organizations. Dialogue, cooperation, communication, and problem solving are part of the daily routine in these organizations, where cultural diversity is a common ground.

Keywords: European agencies, Cultural diversity, Intercultural competence, Interculturality, Multicultural teams, Intercultural relations.

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I. Introduction

We spent two years in a global pandemic scenario that caused millions of deaths, social problems, devastated economies, and suddenly, almost continuously, we entered a war scenario in Europe, which threatens us all. However, it has been the decentralized European Agencies that, with their thousands of employees and collaborators, in continuous work, have supported and influenced, with technical and scientific knowledge, the political decisions that directly affect the almost 500 million inhabitants of the European Union, in matters such as health, security, economy, refugee protection, science and education, among many others.

Over time, several European Union agencies specialized in the decentralization of decisions were established with the aim of providing support and consultation to Member States and citizens. The establishment of agencies has been the response to the desire for geographic decentralization and the need to face new challenges of a legal, technical and/or scientific nature.

These agencies are independent of the European Union (EU) institutions, but work closely with them. Each agency has a specific focus and provides different services, but they all work together to help create a better Europe for all. Thus, we have as some examples: the European Agency for the Evaluation of Medicines (EMA) which is responsible for the scientific evaluation of medicines for human use and promotes their safe and effective use. The European Center for the Development of Vocational Training (CEDEFOP) which promotes the development of vocational education and training in Europe. The European Environment Agency (EEA) provides information on the state of the environment in Europe and promotes sustainable development. The European Agency for Safety and Health at Work (EU-OSHA) which promotes safety and health at work in the European Union. The European Monitoring Center for Drugs and Drug Addiction (EMCDDA) provides information on drug use and addiction in Europe. The European Union Fundamental Rights Agency (FRA), which provides informed and independent advice to national and EU policymakers.

Each of these agencies has its own specific role to play in ensuring that Europe functions smoothly and efficiently by trying to promote cooperation and coordination between European countries in their respective areas.

So far, no studies have been carried out on intercultural competence in European Agencies. We highlight the importance of studies in this area, as intercultural competence, as a complex capacity, can improve performance and professional relationships within these organizations. Furthermore, it is pertinent to consider its relevance in the context of international collaboration and cooperation missions in multicultural, global and transnational environments.

European Agencies are places of multiculturalism in their daily functioning and of great diversity of nationalities and cultures. In these organizations characterized by great cultural and ethnic diversity, their professionals must have sensitivity and cultural awareness, developing intercultural skills for better performance. Thus, the objective focuses on the analysis of the different domains of intercultural competence and on the perceptions and importance that these professionals give to it in organizations where everyone has to cooperate for a common goal.

“Cultural diversity is not new in Europe. However, translating into multicultural cartography or intercultural dynamics, this is an unavoidable reality of contemporary societies, contributing to the development of new forms of social relations, integration of culturally different communities, sharing of knowledge, which are not rare. sometimes accompanied by the emergence of conflicts and communication problems, leading to new forms of exclusion and discrimination” (Alcoforado, et al., 2018, p.70).

European agencies require their own social and cultural learning behavior due to their context and missions, where learning from others and intercultural communication are increasingly complex and challenging in these scenarios. We are constantly bombarded with ideas and manifestations related to tolerance, peace, human rights, anti-racism, equal opportunities, among many others related to multiculturalism and the priority missions of these agencies, but we also see the other side of the violence and multicultural conflict due to the various manifestations of prejudice, stereotypes, intolerance, racism, xenophobia, marginalization, exploitation and social exclusion, and that despite being “officially” banned from the various services and public spaces, “Cultural diversity is recognized by UNESCO (2001, 2005, 2007) as an inherent characteristic of humanity, a common heritage and a source of a richer and more diverse world that expands the possibility of choices and strengthens human capabilities and values” (Ramos, 2013, p.346).

This is a reality that requires a broad discussion around issues of spatial mobility of populations, forced migration and refuge, cultural diversity, intercultural relations and the coexistence of communities with different identities, traditions, religions, skills and knowledge. These themes are directly related to the specific missions of some European agencies that are the subject of study.

The importance will not only be of an internal nature, but also in the external relations with the organizations, groups and people with whom these agencies cooperate and carry out their work. It is expected that the study will contribute to the development of intercultural sensitivity and awareness and the promotion of intercultural competence in these European Agencies.

“Intercultural diversity and the management of interculturality(ies) are the object of concern of several international bodies, namely UNESCO, the OECD, the Council of Europe and the European Commission, and national bodies such as ACIDI (High Commission for Immigration and Intercultural Dialogue), which have developed various projects and initiatives, with a view to promoting intercultural dialogue, constituting one of the most important contemporary fields in the various scientific and interventional domains.” (Ramos, 2013, p. 345).

The international numbers of people fleeing wars, conflicts and persecution cannot leave us indifferent. In 2018 alone, this figure exceeded 70 million displaced people, causing 25.9 million refugees, and half of these refugees are, disturbingly, children and adolescents. But it's not just wars or conflicts that these people flee. They flee hunger and poverty, often caused by environmental disasters and climate change.

Indeed, Europe's cultural diversity and the integration and inclusion of migrants is a central issue on the European agenda. In fact, there is widespread recognition that migration is a very current phenomenon and that the effective integration of migrants is one of Europe's main challenges, taking into account the overwhelming dimension of the migratory flow predicted for the coming decades. (Boussemart & Godet, 2018; Ramos, 2008, 2013, 2020).

Emigration is not just based on the search for better working conditions, or better living conditions, it is also about people who are forced every day to leave their homes, their families, their lives, their country, with the expectation of finding peace, security and also hope in another place. Persecutions, conflicts and violations of human rights lead many to risk their lives and face crossings of danger and death. When we talk about refugees, we are talking about men and women in a situation of extreme vulnerability and risk and in which half of these refugees are children.

“The migratory process is not simply synonymous with cultural encounter, it is a complex and contradictory process, an experience of loss, rupture and change, experienced by the individual in a traumatic or harmonious way, according to their individual and social resources, implying social adaptation and psychological to the host culture, to a new, unknown or hostile environment” (Ramos, 2013, p. 348).

Many are those who every day seek Europe and many other countries as a place of refuge and protection, regardless of whether they are categorized as immigrants, migrants, displaced persons or refugees. However, the response to these situations by European countries has become tougher and less tolerant, especially by some countries. Fears have taken over populations and communities that have their identities called into question, forgetting Human Rights. There have been many negative perceptions about migrants and refugees fostered by racist and xenophobic discourses. We are currently witnessing one of the largest internal flows into the European Union of six million refugees located in Europe due to the war in Ukraine. These are some of the many aspects that force us to reflect in depth,

II. What is intercultural competence?

According to Spitzberg and Changnon (2009, p. 7), intercultural competence “is the adequate and effective management of interaction between people who, in a certain way, represent different or divergent affective, cognitive and behavioral orientations about the world. These guidelines may be more commonly reflected in normative categories such as nationality, race, ethnicity, tribe, religion or region. Hence, to a large extent, intercultural interaction is equivalent to interaction between groups”.

Intercultural competence implies the ability to interact in an effective and acceptable way for and with others, when working in groups or teams, who have different cultural origins, and which can condition attitudes and work practices based on different values and beliefs.

There is a growing consensus on what constitutes intercultural competence, which has often been seen as a set of cognitive, affective and behavioral skills and characteristics that aid in effective and timely interaction in diverse cultural contexts.

Intercultural competence is a complex and multidimensional construct and one of its very strong dimensions is the ability to communicate effectively and appropriately with people from other cultures. But this also includes openly and affectionately understanding different cultural perspectives and being able to adapt one's communication style to suit the cultural context.

Intercultural competence allows one to interact effectively and acceptably with others when working in a group and whose members have different cultural backgrounds. Intercultural competence can reveal other types of resources, including the values and beliefs one grew up with, national, regional and local customs and, in particular, attitudes and practices that affect the way one works.

Thus, we can view intercultural competence as a development process, where the assessment instruments to be used must adapt to the contexts, and it is possible to contextualize personal and group intercultural and migratory experiences within organizations in accordance with their missions.

III. Why do we want to study intercultural competence in the context of European Justice and Home Affairs agencies?

There are 9 European Justice and Home Affairs agencies (as shown in figure 1): EUROPOL (European Police Agency), EASO (European Asylum Support Office), FRONTEX (European Border Guard Agency and Coastal), FRA (European Union Agency for Fundamental Rights), CEPOL (European Union Agency for Police Training), euLISA (European Agency for the Operational Management of Large-Scale IT Systems in the Area of Freedom, Security and Justice)

, EMCDDA (European Monitoring Center for Drugs and Drug Addiction), EUROJUST (European Union Agency for Criminal Judicial Cooperation), EIGE (European Institute for Gender Equality).

Figure 1: European Justice and Home Affairs Agencies



The European Union has a set of institutions to achieve its community objectives. Each of them, according to their specific purposes and purposes, should contribute information for the common good. Among all these EU institutions, there are the decentralized European Agencies that were created to develop technical and scientific functions, with the aim of informing and helping the Union's political management institutions to take decisions.

European agencies deal with “issues and problems” that daily affect the daily lives of the more than 500 million people who live in their area. They are multicultural spaces where their employees, during their missions and daily practices, can glimpse and experience the other side of multicultural violence and conflict, manifesting itself in different ways in public spaces, which should be a safe ground for enrichment and inclusion for all and not discrimination and exclusion.

Employees of European Agencies, due to the context and missions of these organizations, must have a high level of intercultural competence, where social and cultural learning, as well as intercultural communication, become increasingly complex and challenging, requiring employees to have the ability to interact effectively with individuals from different cultural backgrounds.

European agencies require their own individual, social and cultural learning behavior due to their context and missions, where learning from others and intercultural communication are increasingly complex and challenging in these scenarios already described.

It is mainly in these spaces that discussions and proposals for political and operational decisions are developed on migration, border protection, human rights, racism, asylum for refugees, international and transnational terrorism, criminal investigation, gender equality, diversity, drug addiction, among others. competences inherent to their own missions.

As a result, these agencies need to develop their own approaches to social and cultural learning that take into account the specific needs and challenges of their work. One of these ways is to ensure that there is good intercultural communication within the organization, seeking to help that different cultures are respected and that organizational learning can occur on equal terms.

IV. Methodology

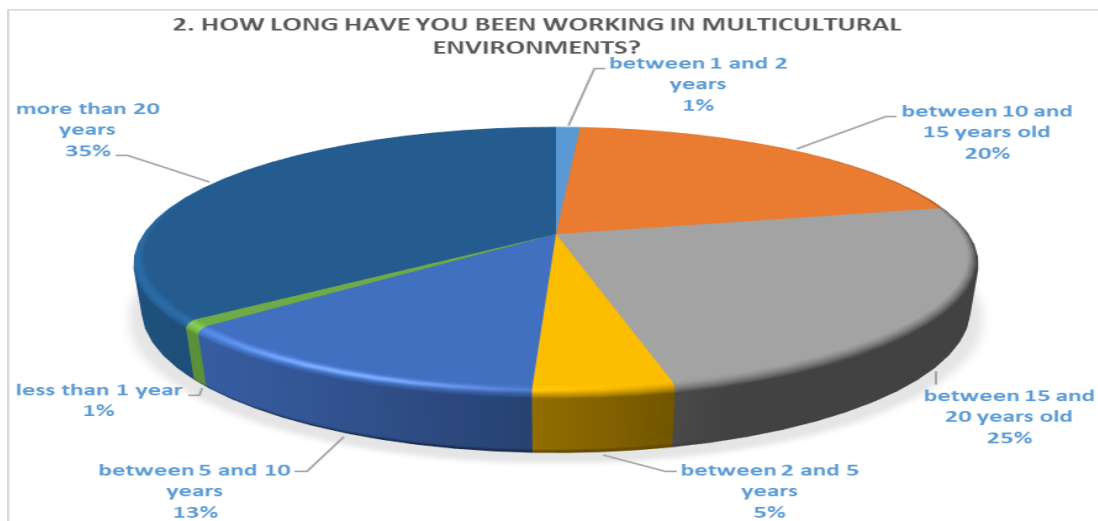
The analysis and processing of the data carried out allowed us to reach the results that we will present and are mainly focused on the level of attitudes which include the following capabilities: respect, curiosity and the desire to learn about other cultures; openness to people from other cultures; the ability not to make value judgments; the ability to tolerate ambiguity and value cultural diversity, as well as transversal skills: problem solving, teamwork, adaptation to different contexts, interpersonal relationships, independence and autonomy.

The sample collected included 723 international respondents in the European context, who self-assessed their intercultural skills, through a questionnaire using the “EUSurvey” platform, distributed across 4 age groups as follows: 5.5% of participants in the group up to 34 years; 25.4% in the group of participants between 35 and 45 years old; 46.9% between 45 and 54 years old; and 22.2% of participants are over 55 years old.

V. Results and discussion

About 80% of respondents have more than 10 years of experience in multicultural work environments (Fig. 2), and more than 13% have between 5 and 10 years in these environments, which in a first analysis is a guarantee of quality in the answers, when we approach intercultural competence, where we intended to obtain their perception about the ability to interact and work in multicultural environments, all these professionals have many years of experience in these contexts.

Figure 2: How long have you been working in multicultural environments?



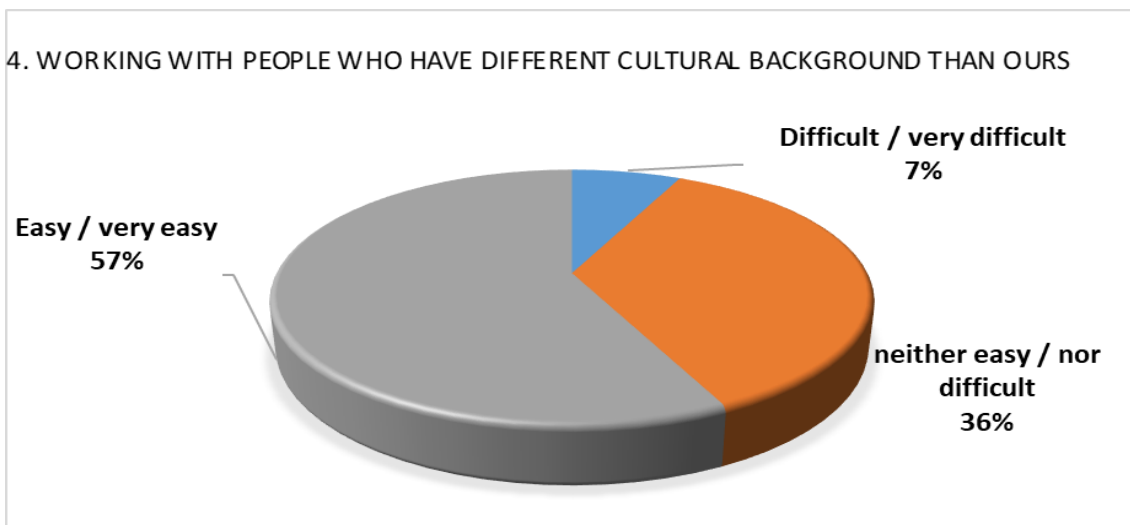
However, when asked if they had attended any type of training that had provided them with some intercultural skills, according to them, only 47% said they had had some type of training in this area, with the majority 53% responding never having had training in skills. intercultural (Fig. 3) and, therefore, that for the majority their “training” was done through the experience of working in these contexts.

Figure 3: Do you have any kind of training in intercultural skills?



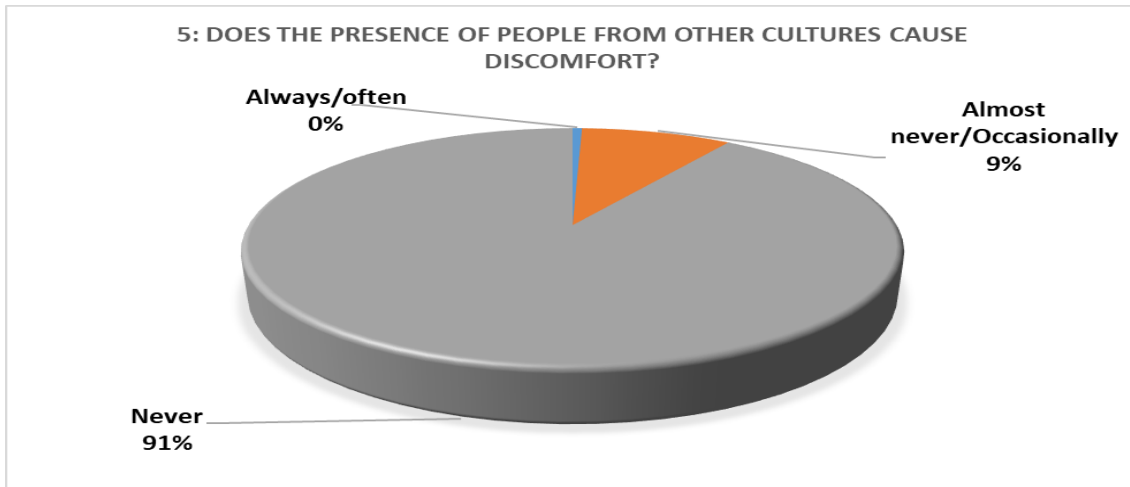
European agencies are true places of multiculturalism and the meeting of many people from the most diverse regions of Europe. However, in terms of work objectives, they are parameterized by organizational objectives that lead to the cultural climates experienced being somewhat standardized to a “culture” often established by rules and norms of behavior in force in these organizations. When we tried to understand what the working relationship was like between colleagues within the same organization, we obtained a result that does not seem to be complex, as we can see in Fig. 4, with the majority (53%) referring to being “very easy / easy” o working with people from cultural backgrounds different from their own, and only 7% of individuals view it as “very difficult / difficult”.

Figure 4: Working with people who have a different cultural background than ours.



However, when participants are asked about the presence of people with different cultural backgrounds in the work environment, we found that for around 9% this presence still causes some occasional discomfort (Fig.5).

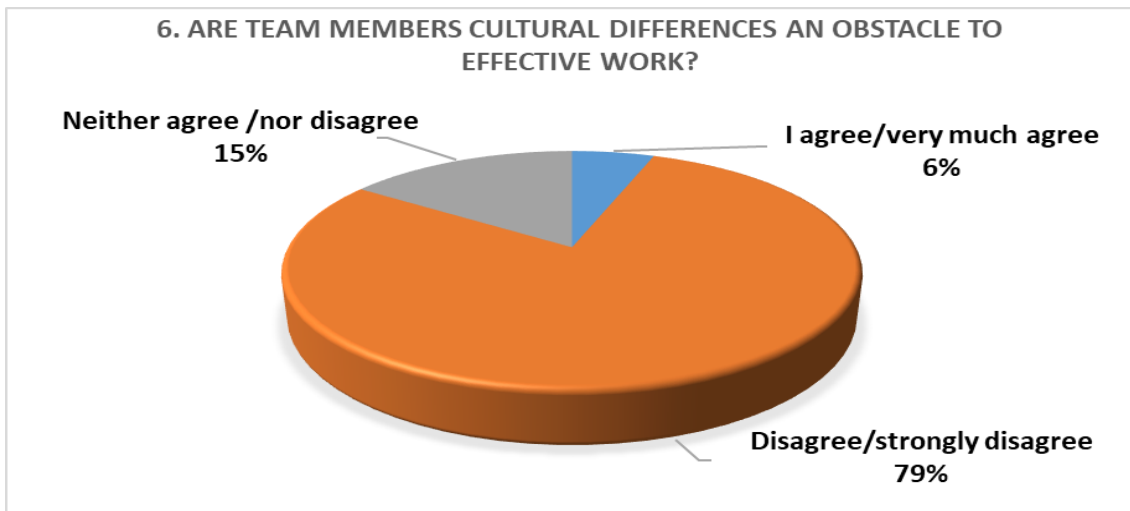
Figure 5: Does the presence of people from other cultures cause discomfort?



However, cultural differences are neither understood nor perceived as obstacles, either for carrying out more effective work or for the cohesion of the work group, or even as an obstacle to the relationship of trust in professional terms. as can be seen from Figures 6, 7 and 8.

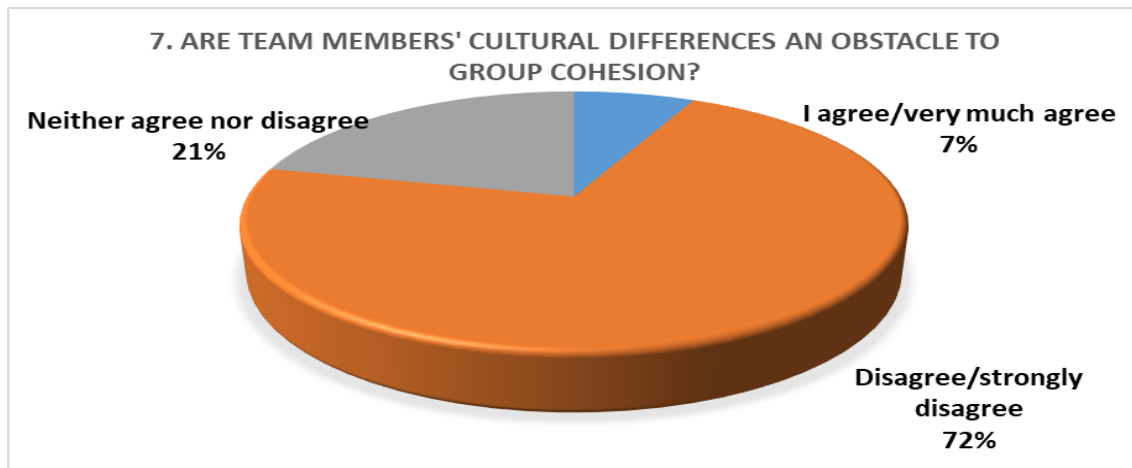
When asked whether cultural differences can be an obstacle to carrying out effective work, the majority is overwhelming, with 79% completely disagreeing, with only 6% in the opposite direction (Fig. 6).

Figure 6: Are team members' cultural differences an obstacle to effective work?



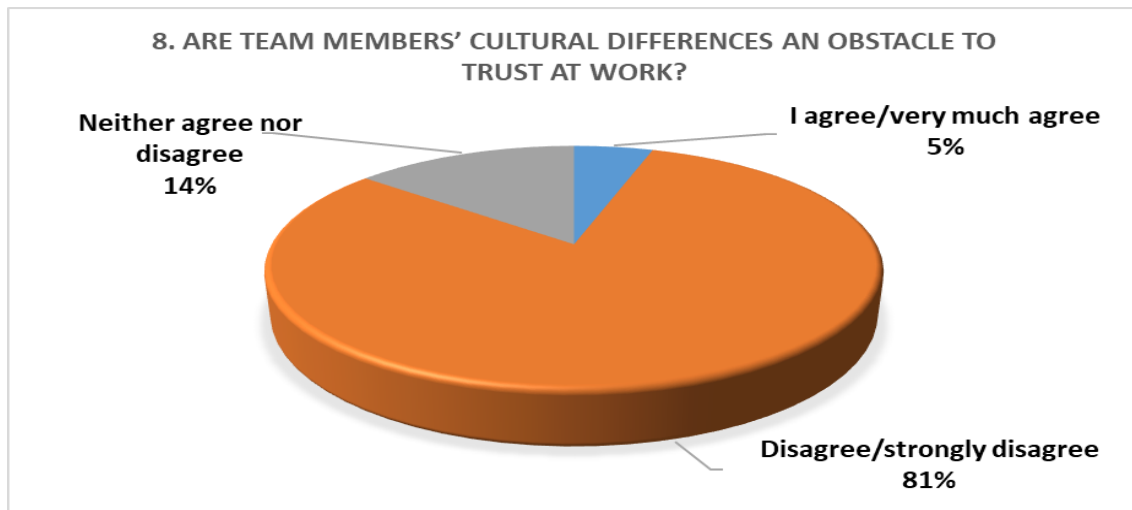
These values also go in the same direction regarding the perception that respondents have in relation to colleagues, from different cultures than their own, and whether it is felt as an obstacle to the cohesion of the work group (Fig.7), thus for the majority of respondents (72%) cultural issues are not an obstacle to the cohesion of the work group, compared to only 7% who go in the opposite direction.

Figure 7: Are team members' cultural differences an obstacle to group cohesion?



With regard to trust, the values also go in the same direction, with the perception that respondents have in relation to colleagues, from cultures different from their own, and that they are felt as an obstacle to trust at work (fig.8), so for the majority of respondents (81%) cultural issues are not an obstacle to confidence at work, as opposed to only 5% who do in the opposite direction. Thus, we can say that trust is not shaken by issues related to cultural differences and we know that building trust is an extremely complex and delicate process that requires great involvement, availability and openness to each other and among peers. We can say that at this point confidence is even reinforced.

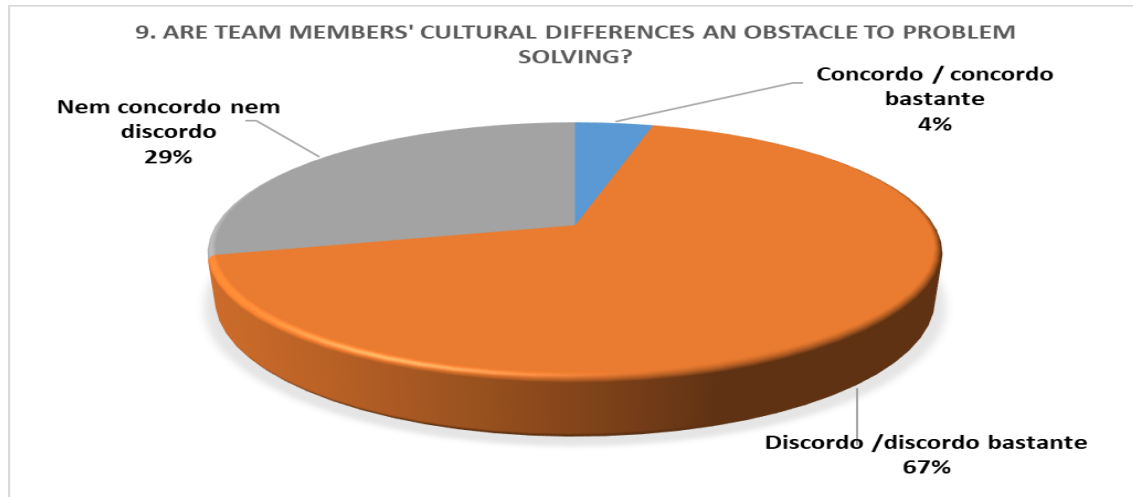
Figure 8: Are team members' cultural differences an obstacle to trust at work?



In the same sense, when asked whether the cultural differences of team members are an obstacle to problem solving (Fig.9), the value is very low for those who agree with this statement (4%) in relation to the value presented by those who completely disagree with it (67%). Both problem-solving processes and negotiation processes require their own specific skills which, when in multicultural environments, should be very well supported by high intercultural competence. However, if problem-solving processes are more associated with resolving technical issues, it removes a lot of weight from issues of relational origin, which could make these processes easier.

Therefore, we can say that these values reinforce the values obtained previously regarding trust at work.

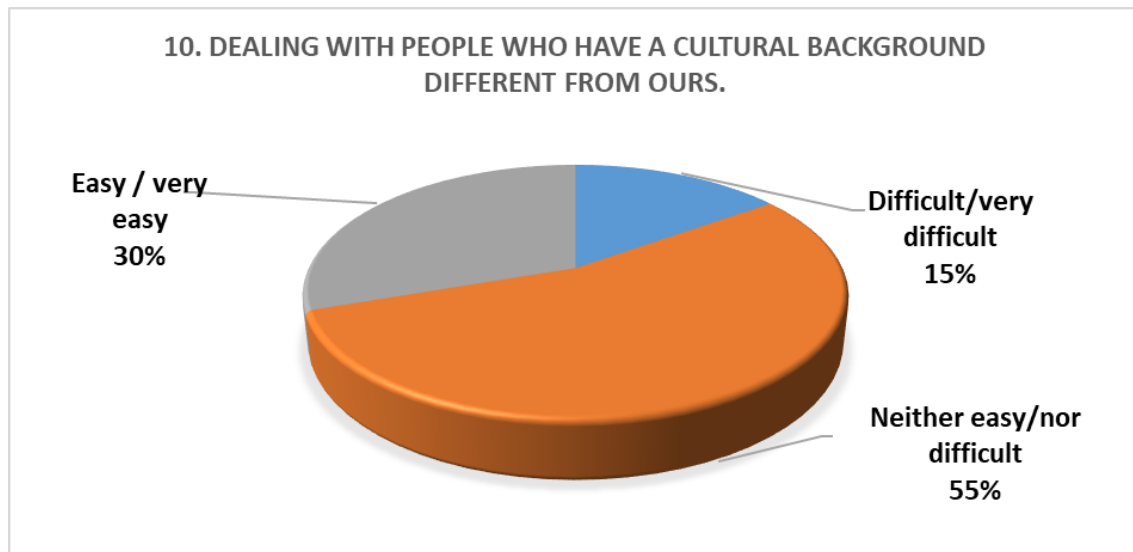
Figure 9: Are team members' cultural differences an obstacle to problem solving?



When asked about negotiation processes with colleagues from different cultural backgrounds, multiculturalism becomes a highly relevant factor and can represent a significant obstacle. The results obtained reveal divergent perceptions among the respondents regarding the difficulty of these negotiations (Fig.10). Of the values obtained, 15% of respondents consider it to be "very difficult or difficult", while around 30% say it is "easy or very easy". However, the majority of participants (55%) do not categorize these negotiations as easy or difficult, indicating a high level of indecision on this issue.

The negotiation process is complex from a psychosocial point of view, involving a complex structure of analysis, attitudes and opinions that are influenced by the cultural diversity of those involved. This complexity is accentuated by the need to understand and respect cultural differences, deal with stereotypes, prejudices and communication barriers, in addition to adopting negotiation strategies for the cultural specificities present. Therefore, it is essential to recognize and address the complexity of multiculturalism in negotiation processes, taking into account the diversity of values, perceptions and cultural behaviors involved.

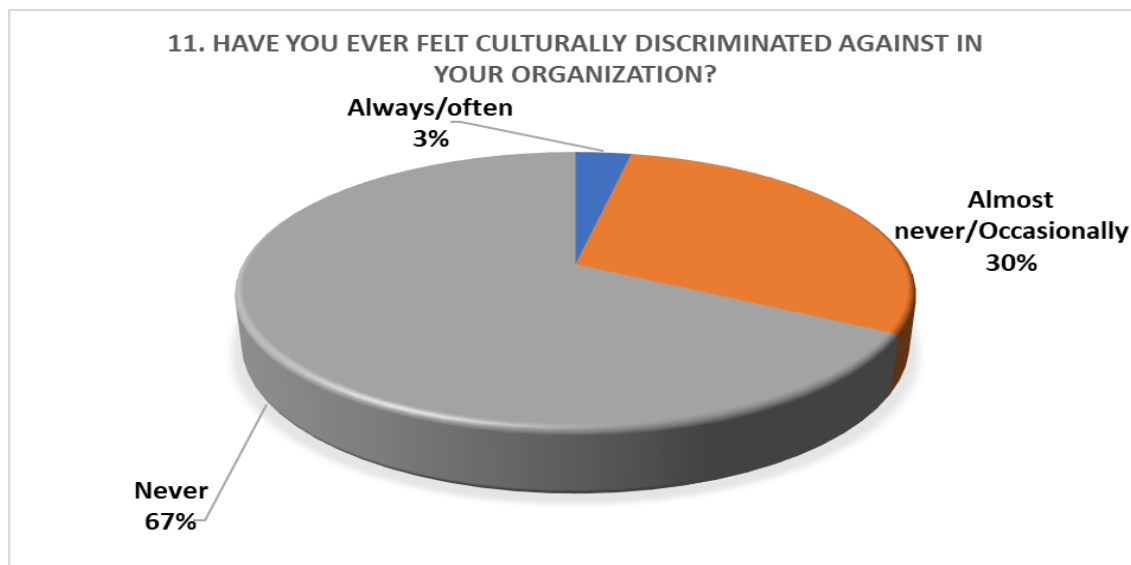
Figure 10: Dealing with people who have a cultural background different from ours.



Since 2000, all forms of discrimination between individuals have been prohibited in the European Union. Discrimination is a broad and dynamic concept that can be caused by individuals and/or institutions. Discrimination may consist of actions or omissions, causing a person or a group of people to feel inferior or excluded because of their belonging, origin, culture, gender, generation, sexual orientation or another factor other than the one causing it. this discrimination.

In this sense, we asked if the participants had ever felt culturally discriminated against within their organizations, and we obtained a value in which the majority (67%) stated that they had never felt culturally discriminated against. We consider the 33% of respondents who responded that they had already felt culturally discriminated against (Fig.11) to be a high figure. In this case, 3% reported that they were always or almost always culturally discriminated against and 30% were somehow or occasionally culturally discriminated against.

Figure 11: Have you ever felt culturally discriminated against in your organization?



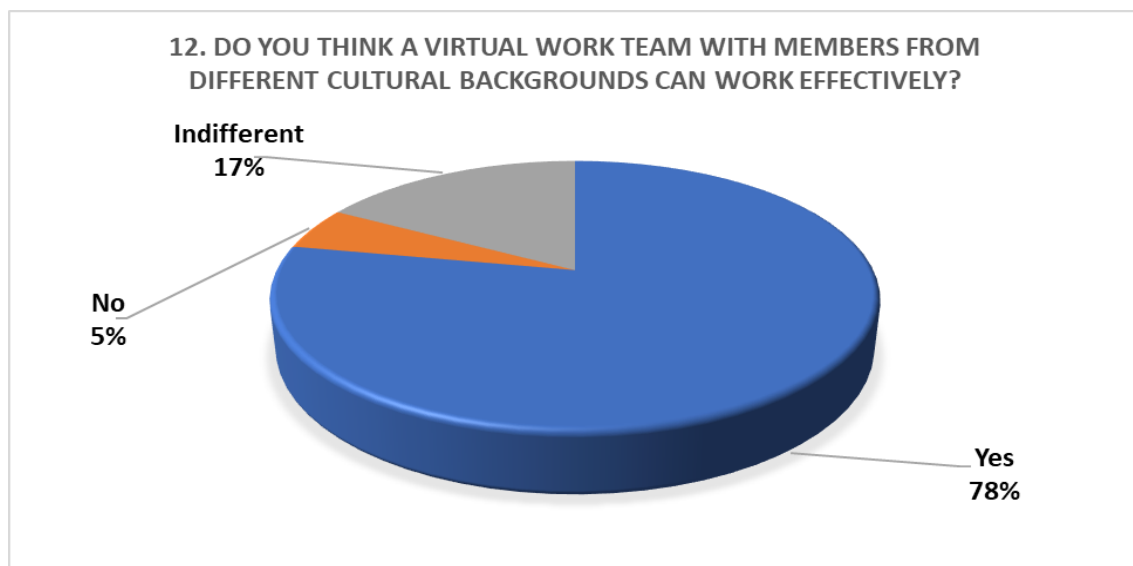
In these European agencies, where we work in multicultural environments and deal with incidents and problems arising from cultural differences and human rights violations, such as migration, refugees and human trafficking, it is essential to promote tolerance and combat discrimination.

To achieve this objective, it is essential to develop an organizational culture based on values that reject these situations, making them unacceptable within European institutions.

Despite all the current legislation that facilitates cultural integration processes, intercultural relations will always be conditioned by the educational processes in force in different cultures and, above all, in the basic cultural and educational cell, which is the family. Intercultural relationships are often disturbed based on various prejudices and stereotypes developed from an early age and which can lead to different forms of discrimination.

Finally, we sought to learn more about the most common organizational context of the last two years, in which we have been living in the context of the covid-19 pandemic, and in which intercultural relations in virtual work environments have been taken to an extreme. In reality, this situation within these agencies was not unusual, as virtual environments were already used in many situations. However, during the Covid 19 pandemic, it was taken to its maximum exponent with almost all employees working remotely from their homes, but this time in their countries of origin. And, once again, it was reported that cultural differences in virtual teams also made a difference in the way of working, execution and achieving objectives. The results show that the respondents' perception is that for 4%, Multicultural differences mean that teams in virtual work do not function effectively, with 17% being indifferent and the vast majority (78%) thinking that teams in virtual work are not affected by different cultural backgrounds. (Fig.12).

Figure 12: Do you think a virtual work team with members from different cultural backgrounds can work effectively?



VI. Conclusion

This study allowed us to approach the perception of intercultural competence that professionals from decentralized European agencies have and its importance. In organizations where everyone works together towards a common goal, it is important to know what perceptions and importance these professionals attribute to the different domains of intercultural competence.

These preliminary data need to be confronted with more information and a mixed approach, that is, of a quantitative and qualitative nature, as well as the use of a comparative and in-depth approach. Such studies may reveal possible internal phenomena within European agencies at the level of intercultural competence components. We can see intercultural competence as a process of development and adaptation to contexts, where intercultural experiences can be contextualized within organizations according to their missions. However, and despite these limitations, it allowed us to present some reflections on the importance and the need to invest in multicultural training in these agencies in terms of developing the intercultural competence of their professionals.

Decentralized European agencies must pay attention to indicators on intercultural competence, often inherent to their missions, and intervene and decide in many international situations related to multiculturalism and diversity, migration, refugees, asylums, human trafficking investigations, as well as many other issues such as drug safety, food safety, and the safety of goods and people.

Many of these organizations already have training and development programs that help their employees improve their intercultural competence, ensuring that they are more competent and attentive when it comes to communicating and working effectively with people from other cultures. It will also be important that these organizations, through their professionals, are internally interculturally competent, so that they can be even more so externally during their special missions and that they are culturally sensitive and non-discriminatory to citizens across Europe. and, also, to all those who come from other continents, often fragile and who, for various reasons, seek in this multicultural Europe a space of security, freedom and opportunity.

Some of the most important domains of intercultural competence include: understanding and respecting cultural differences; be able to communicate effectively with people from other cultures; be able to work collaboratively with people from other cultures; have a deep understanding of your own culture. Each of these domains is important in its own way, and together they can create a solid foundation for intercultural competence. However, it is important to remember that each person has their own unique culture and background, so it is also important to be flexible and adaptable when working with others.

Intercultural competence allows you to interact more effectively and acceptably with others when working with groups and teams whose members have different cultural backgrounds. Intercultural competence can also reveal values and beliefs, national, regional and local customs and, in particular, attitudes and practices that affect the way each person works. Dialogue, cooperation, communication and problem solving are part of the daily lives of these organizations where cultural diversity is a common link, hence the possibility of contributing to a greater accommodation of good practices, for intercultural communication and cooperation within and between organizations, increasing sensitivity, intercultural awareness and promoting intercultural competence in European Agencies, also contributing to democratization in the European space.

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Green Prisons in Hungary?¹

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In accordance with the requirements of its own development policy and the high-level requirements of the performance tasks, the Hungarian Prison Service constantly strives to keep in mind and use innovative and environmental solutions in its daily work in our prisons. The large-scale energy rationalization and deployment of solar systems in recent years has affected most all of our prison institutes. Can we, as prison service, really take or be part of the Hungarian plan of climate neutrality? Can we become Green Prisons to help our country to achieve all the goals and plans of the European Green Deal policy? This is the main question. The Hungarian Prison Service has been engaged in quite serious tender activities in recent years, so the question has arisen to discuss whether prison can be part of this dream and, if so, how?

Keywords: prison, climate, environmental protection, energy rationalization, solar panels

I. Introduction

The Hungarian penitentiary system has been engaged in quite a lot of tendering activity in recent years, so the question arose for discussion: can the penitentiary system be part of this dream and if so, how? The Hungarian penitentiary system, in line with the demands of development policy and the high standards required for the execution of its tasks, has been constantly striving for years to meet innovative and modern technical, logistical, development and environmental expectations. The primary concern of the national prisons is, among other things, to improve the quality of secure operation. Energy rationalisation, the installation of solar systems⁵ and the importance of selective waste collection are all integral parts of this.

II. Background

For many years now, Hungary has given high priority to international climate policy negotiations, to the development of energy and climate relations between countries, and to major global trends such as the clean energy transition, whereby countries around the world are gradually moving away

¹ The present study is the outcome of research conducted in the framework of the TKP2021-NVA-18 The National Security Emphasis of 21st Century Security Challenges project "Environmentally Aware Prison Service - The Role of the Modern Hungarian Prison Service in National Security Activities, with Special Reference to the Dimensions and Opportunities of Security and Environmental Awareness".

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⁵ KEHOP-5.2.11-16-2016-00019 „For example, the project "Installation of a photovoltaic system in the Zala County Prison" has involved an investment of HUF 102.1 million. A solar system of the value of almost 133 million HUF was also installed in the Sátoraljaújhely Prison and Detention Centre in 2018.

from high carbon emission fossil energy sources such as coal, oil and natural gas to more environmentally friendly renewable and other clean energy technologies such as solar, wind and nuclear. However, it is very important that the driving force behind all this is the Paris Climate Agreement, signed by most countries of the world in 2015, in which countries pledged to keep the global average annual temperature rise to within 2 degrees Celsius, but will make efforts to keep it to within 1.5 degrees. The most important issue at the moment is what the European Union and its Member States are currently doing to meet this Paris Agreement climate target. The European Green Deal is, in fact, a reflection of this climate target, which is a green development strategy with the ultimate goal of achieving climate neutrality by 2050, and this will certainly affect all areas and even involve a transformation of the whole economy. The European Union has always been a global leader in this endeavour. On the one hand, by setting a good example for other countries by making sufficiently ambitious commitments, and on the other hand, by actively urging other countries to act: to translate national commitments into action, to set out clear strategies and to establish concrete action plans.⁶

Domestic political direction in the field of climate policy is being set by the Ministry of Innovation and Technology. Hungary has made an independent commitment in the 2020 Climate Protection Act to become climate neutral by 2050. Of course, these commitments are based on analyses and data that indicate that it is possible to achieve this target. In addition to this, Hungary has also set another goal in this climate law and in the national energy and climate plan, namely that it will reduce its domestic emissions by 40% by 2030 compared to 1990. This is also unique and exemplary because there is no requirement in the European Union for any Member State to set a sufficiently ambitious national economic target at national economic scale, especially not at legislative level, and there is no binding obligation for Member States to commit to a climate neutrality target.

III. The intersection between the penitentiary system and environment protection

From an environmental and energy consumption point of view, the penitentiary sector is also a very interesting and specific area. It is basically a mini-city where the detainees have to be provided with all kinds of services. It is quite a challenge, however, that Hungarian prisons are considered a curiosity from a technical point of view, as our prison buildings are well over 100 years old. The vast majority of Hungarian prisons were built at the end of the 19th and beginning of the 20th century, which, in accordance with the conventions of the time, implies that the technology used is at the very least outdated and obsolete. For this reason, the renovation, maintenance and energy-efficient operation of the buildings as well as of the various systems and electrical networks within the buildings have been ongoing for many years. However, all this requires substantial financial resources. In recent years, the national penitentiary system has carried out a series of renovations using its own resources and on the basis of tenders. Two forms of tender funding have been used: tenders from the Ministry of the Interior and EU tender funding. The essence of the Ministry of the Interior tenders is that only bodies belonging to this Ministry could apply and a 6-year payback limit is applied, which means that the tender is also sustainable in the long term. This type of tendering is not suitable for the complete renovation of an entire institution, but it is perfectly

⁶ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing the framework for achieving climate neutrality and amending Regulation (EU) 2018/1999 (European Climate Law) COM/2020/80 final

adequate for the thermal insulation of buildings, the replacement of windows and doors, the installation of grey water technology, lighting upgrades (whether it be spatial or interior lighting) or, where appropriate, the elimination of kitchen technology, steam technology and the use of modern equipment. Since 2007, the Hungarian penitentiary system has had 77 successful tenders of this type, representing approximately 500 million HUF. The first EU tenders were launched in 2009. Their big advantage is that they cover 100% of the costs for budgetary bodies. In these tenders, domestic penitentiary institutions have mostly applied to save thermal energy and electricity production or consumption. A total of 4.2 billion HUF was awarded in EU tenders, of which 2.4 billion HUF was specifically earmarked for renewable energy sources.⁷

The Hungarian penitentiary system also saw a huge opportunity in energy and resource efficient building/construction and modernisation. Particular attention has been paid to this in recent years, whether it is the expansion of prison capacity or the modernisation of existing buildings. Obviously buildings are 'responsible' for 40 % of energy consumption. The Green Deal strongly supports modernisation programmes for public and private buildings to address the twofold challenge of energy efficiency and affordability. Increasing the modernisation rates is not easy, but it reduces energy costs and can contribute to a reduction in energy poverty.⁸ This is a long-term programme that the applicant penitentiary institutions have sought to join. Between 2003 and 2019, energy consumption data show that energy use in the penitentiary sector decreased by around 37%. A significant part of this reduction was due to the reduction of fossil fuels and the efforts made to reduce heat energy.

In 2020, the Hungarian penitentiary system implemented expansion projects at ten sites, and at these sites - where around 2,700 detainees are held - the entire heat energy supply is provided by heat pump systems. A noteworthy example is the prison health centre in Berettyóújfalu, which also uses heat pumps for cooling and heating, as well as domestic hot water.

However, for more detailed examples, we would like to mention two exceptional institutions that have successfully tendered and implemented major environmental projects on several occasions in recent years. One of these outstanding institutions is the **Sátoraljaújhely Prison and Detention Centre**, where the basic task is to ensure the execution of prison and detention sentences for adult men with a custodial sentence and where approximately 300 prisoners are serving their sentences. The building was built in 1905 for the purpose of serving as a Royal Prison, so it is a distinctly old building complex.

From 2009 onwards, the institution's mission has included the establishment of an economical operation, the preservation of the building and the maintenance of a conscious economy. To this end, the Institute applied for and was awarded a grant of more than 422 million HUF under the Environment and Energy Operational Programme for the implementation of the scheme "Energy efficiency improvements in buildings combined with renewable energy sources". The technical content of the tender included the replacement of the windows and doors of the buildings, the subsequent thermal insulation of the detention building, the installation of a solar electricity backup system, the construction of a solar hot water system, as well as the replacement of boiler rooms, kitchens and laundry rooms.⁹ The main objective of the project was to reduce operational costs,

⁷ Az ökoszisztémák és szolgáltatásaik döntéshozatalba való integrálásáról szóló uniós iránymutatás. SWD (2019)305 FINAL.

⁸ European Green Deal 2.1.4.

⁹ The tender included the insulation of the facade and the plinth of the building in order to save energy. The project involved the replacement of 371 windows and doors, 174 of which were plastic, 189 wooden and 8 aluminium, the renovation of 107 radiators with thermostatic valves and replacement of the hoods, the installation of 3 condensing

which are expected to amount to 20-25 million HUF per year. A further goal was the use of environmentally friendly technologies and the installation of modern equipment. Subsequently, in 2016, the institute won another tender under the Environment and Energy Efficiency Operational Programme, the "Development of photovoltaic systems for central budgetary bodies"¹⁰, this time for more than 132 million HUF. The application requested funding for a so-called "small solar power plant". The total capacity of the system implemented is 222 kWp, which is a huge investment for a penitentiary institute. On 2 June 2020, the power plant at the institute has started its extraction operation. The completed system ensures a significant reduction of the institute's electricity consumption.¹¹ In practical terms, this means that while in 2009, the year before the application period, the annual heating bill for the institute totalled 73 million HUF, 11 years later, even with inflation, the same utility bill in 2020 is less than 30 million HUF.¹²

The more than 1,000 square metres of solar panel complex installed at the facility has also given the institute autonomy in a number of areas, such as hot water production, which the institute now produces itself. Also, these 1,000 square metres of solar panels cover the entire electricity consumption of the institute. The power plant not only covers the needs of the institute, but in 2020 it also produced electricity for external customers, generating more than 2 million HUF income per year for the institute. The Institute's management expects that in 2021 this production for external customers will be considerably higher, providing significant revenue. In addition to production, however, the plant has a significant - also environmental - function. The Institute estimates that it will reduce emissions by 180 tons of pollutants per year. If we add to this the full impact of the complex improvements that the Institute has won through tenders: from replacing windows to heating upgrades, from insulation to the purchase of industrial machinery for the laundry, and including the replacement of the entire boiler system, this represents a reduction of more than 260 tons of emissions annually. Just for one institution!

The other institute with an outstanding tender result is the **Penitentiary Institute of Bács-Kiskun County**. The correctional facility, which houses male prisoners serving their final sentences both on prison and jail level, mothers who are co-housed with their children during their detention, juvenile female and male detainees, as well as adult and juvenile prisoners, has a capacity of holding 238 inmates. The institution actually consists of two buildings, one of which - Mátyás Street - was built as a courthouse, similar to the one in Sátorajáújhely, and was opened to the public in 1904. The second building - the Wéber Ede Street unit - was completed ninety years later, so there is a huge architectural difference between the two buildings.

In the beginning, the institute engaged in small environmental tenders, mainly aimed at raising the awareness of the prisoners, such as recycling PET bottles, then creating vegetable gardens from these PET bottles and using the vegetables produced there for the prisoners' meals. Inspired by these small initiatives, the institute entered a Ministry of the Interior energy rationalisation tender

boilers and 2 steam boilers. In addition, 70 solar collectors for hot water production and 72 solar panels with 3 single-phase inverters were installed (KEHOP-5.3.0/B/09-2010-0087 programme).

¹⁰ KEHOP 5.2.11-16-2016-00048. programme Environmental and Energy Efficiency Operational Programme for the Sátorajáújhely Prison and Penitentiary

¹¹ The implementation of the project will result in 199 759 kWh/year savings, 499 397.5 kWh/year reduction of primary energy consumption, 719.1324 GJ/year of renewable energy production and 182.28 tons of harmful carbon dioxide emissions reduction.

¹² Over the years, Sátorajáújhely has also participated in several other tenders, as a result of which the institute has fluorescent lamps everywhere, from the guard posts to the commandant's office. Another tender result is the installation of time switches in the prisoner showers as well as a mixed water system for the detainees.

and won 5.5 million HUF, which enabled them to start replacing their boilers.¹³ This was followed by other smaller Interior Ministry tenders, all successfully contributing to small scale energy nationalisation processes.¹⁴

The first major breakthrough was achieved in 2017, when the Institute won a tender for 106 million HUF for the installation of a solar power plant in premises I and II.¹⁵ The investment was co-financed by the Cohesion Fund and national central budget appropriations. The development has resulted in significant electricity cost savings in the two premises of the institute, with the installation of 180 kilowatts of solar power. This system will enable the Institute to save more than 80,000 kilowatts of electricity per year. Thanks to these savings, they were able to bid for further tenders as a co-financing, which were then used to modernise the air-conditioning system in the Institute's premises and offices, which also significantly reduced carbon dioxide emissions. The Institute is now at the stage where, thanks to the improvements, gas consumption has been reduced by around 45 thousand cubic metres per year in building I. alone, which is a significant improvement on the initial target.¹⁶ The Institute is still continuously involved in developments and tenders whenever possible. Currently, efforts are underway to replace the entire lighting system of the Institute with LED lighting. The situation of the Institute in Bács-Kiskun County is different from most modern institutes in that building I. is under very strict monument protection regulations. For this reason, for example, the replacement of the already very basic windows and doors is not allowed or very difficult.

IV. Future projects and plans

The penitentiary sector wants to be an integral part of Hungary's ambitious climate goals. Accordingly, one of the most important areas that definitely needs attention - for the sake of a green and circular economy - is the disposal of waste. There is incredible potential in the recycling and reutilisation of waste emissions from goods and closely related materials processed in the prison sector. The aim is to make the product recyclable, durable and repairable. This can significantly reduce the amount of waste in the context of a sustainable product policy. As waste production cannot be avoided, one should capitalise on its economic value and minimise its impact on the environment. The Hungarian prison system is so committed to this that not only is selective waste collection practised in many of its institutions, but also a joint training programme for prisoners is included as a reintegration programme. Our inmates have been able to obtain partial qualifications in waste sorting and processing in several national prisons. However, this is not only a qualification, but also an attitude adjustment, which must be part of an effective and efficient reintegration into society. A GD product policy could be introduced in prison operations, such as catering, to minimise waste. Also related to this is the fact that food consumption in penitentiary institutions is significant.¹⁷

¹³ Considering the limited funds available, the amount won from the tender was used to upgrade the heating system in the new facility.

¹⁴ These objectives have been achieved and the institution has saved 4-5 million HUF per year on maintenance costs, which is a significant saving for an institution of this size.

¹⁵ KEHOP-5.2.11-16-2017-00105

¹⁶ In total, 110,000 cubic meters of gas can be saved annually in the two facilities, which, according to the calculations of the institute's commander, will save 1,520 trees, as about 1,520 trees would be able to reprocess this amount of carbon dioxide, which means almost 4 hectares of forest.

¹⁷ Many experts like: Berki A. & Nyitrai E. (2021). Bullock, G. & Wilder, N. (2016). Celikdemir, D. Z., Gunay, G., Katrinli, A., & Penbek Alpbaz, S. (2017). Chapin, E. (2019). Csáji Balázs Cs. (2003). El-Jardali, F., Ataya, N., &

Accordingly, the amount of plastic containers (jam, butter, hazelnut cream, etc.) used here should be reduced¹⁸, and the purchase should be contracted on terms that guarantee less waste. Alternatively, purchasing food from producers who have a "green" product policy is also an option. Obviously, the financial implications of this could impose a considerable burden on the prison service at present, and could therefore be seen as a long-term goal.

Another area to be highlighted is the plan to create a fair, healthy and environmentally friendly food system.¹⁹ Given the fact that, in the context of internal supply in the domestic penitentiary system, the economic enterprises of the correctional services provide a significant part of the food supply to the institutions, there is scope for achieving results in this area too. Indeed, with the creation of the Central Supply Organisation, the domestic penitentiary institutions have been integrated into the central supply system and thus into the internal supply chain. Under the term of internal supply chain, we mean the provision of food to the institutions. Since 2011, owing to the favourable changing legal environment and as a result of continuous investments, the economic companies of the penitentiary system have made significant improvements in the field of internal supply chain, both in terms of quantity and quality.²⁰

With the help of inmate labour, the economic enterprises of the penitentiary system grow their own cereals, fruit and vegetables, raise poultry, and produce meat products as well as dry pasta. According to the Green Deal, new opportunities are opening up for all actors in the food value chain thanks to new technologies and scientific discoveries. The European Commission has prepared a "farm to fork" strategy and is calling for a broad debate with stakeholders at all stages of the food supply chain, which could pave the way for a more sustainable food policy. This could be closely linked to the launch of the EU Common Agricultural Policy (which is likely to be delayed until early 2022 due to the epidemic), which aims to ensure that national strategic plans for agriculture fully reflect the ambitions of the Green Deal and the farm-to-fork strategy from the outset.²¹ These plans should lead to the adoption of sustainable practices such as precision farming, organic farming, agroecology, agroforestry systems and higher animal welfare standards. The domestic penitentiary system also plans to introduce these forms of farming.

Perhaps the most well-known and most common aspect of the climate issue is the greenhouse gas emissions from transport. According to the Green Deal, transport is responsible for a quarter of the EU's greenhouse gas emissions, and this share is steadily rising. Achieving climate neutrality requires a 90% reduction in transport emissions by 2050. Achieving sustainable transport means putting users first and providing them with more affordable, accessible, healthier and cleaner alternatives to their current mobility options. The Agreement calls for a strategy for sustainable and smart mobility to meet this challenge. This is an issue that also concerns the prison sector, as the means of transport (vehicles) used by the penitentiary system will also need to be modernised

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¹⁸ From 1 July 2021, Hungary has banned the use of single-use plastics under its climate policy.

¹⁹ European Green Deal 2.1.6

²⁰ This is evidenced by the fact that pork, which was worth nearly 239 million HUF in 2013, had already exceeded 257 million HUF by 2016; chicken meat, which was worth 92 million HUF, had increased to nearly 130 million HUF three years later; while the total value of bakery products had increased from 240 million HUF in 2013 to 392 million HUF (www.bv.gov.hu - accessed 25 January 2021).

²¹ Remington-Doucette, S. (2017). Sustainable world: approaches to analyzing & resolving wicked problems. Dubuque, IA: Kendall Hunt.

and the content of the GD will need to be taken into account in the procurement of the vehicle fleet.²²

Finally, one of the greatest potentials of prisons is manpower. This manpower is, of course, limited in capacity in many respects (security, human rights, health aspects, etc.), but in many other regards it could provide a stable and long-term workforce. It is a long way off, but according to the Green Agreement, "forest ecosystems are under increasing pressure as a result of climate change. The quality and quantity of the EU's forests must be improved." and that "the new EU forestry strategy will have as its main objectives the effective reforestation, conservation and restoration of forests in Europe."²³ Ecosystems provide essential services such as food, drinking water, clean air and habitat. It is well known that sustainable reforestation and afforestation as well as the restoration of degraded forests can increase carbon sequestration, thereby improving forest resilience and promoting a circular bioeconomy. National strategic plans under the Common Agricultural Policy should encourage forest owners to maintain and increase forest sustainability through their work.²⁴ The penal system could make an excellent contribution to this objective in the context of prisoner employment. In the Penitentiary Institute of Bács-Kiskun County and in many other institutions, tree planting and nursery programmes have been taking place for years. In this context, not only the role of practice-oriented training is being valued, but also the development of competency frameworks to develop and assess knowledge, skills and attitudes related to climate change and sustainable development, which can be made available not only to prisoners, but also to the staff. It is clear that proactive re-education and upskilling of citizens from all sectors of society is necessary to reap the benefits of the ecological transition. This also includes prisoners!

V. Conclusion

All EU countries must contribute to achieving the objectives of the Green Deal. The penitentiary sector has a great potential to support Hungary in achieving these goals. If we consider and build on the environmental steps taken by the Hungarian prison sector in recent years, we can already join some of the strategic points contained in the Green Deal. We can transform the industrial activities of the domestic penitentiary system, i.e. companies and other workplaces, into environmentally friendly ones, or we can reconsider production (textiles, construction, electronics, and plastics) so that it would be less resource-intensive and more environmentally friendly. The modernisation of buildings is an ongoing process. The Hungarian prison sector is paying particular attention to this, as buildings account for 40% of energy consumption. Well-insulated walls and windows mean less energy consumption. Traffic pollution in prisons and related institutions can be reduced by electric vehicles. At present, the cost of these is significantly higher, but if the action plan of the Green Deal is implemented, a shift will be implemented in the long term. If only because vehicle use in prisons is more predictable than in the police, for example. Another aspect that cannot be neglected is the absence of pollutants. Exploiting the potential for grey water use could be a good idea. Currently, toilets in prisons are flushed with drinking water. If grey water

²² According to the GD, the Commission will tighten standards for air pollutant emissions from vehicles with internal combustion engines and will take the initiative to review legislation on carbon emission standards for cars and vans, opening the way to zero-emission mobility from 2025. In parallel, it will consider the application of European emissions trading to road transport, complementing current and future carbon emission standards for vehicles.

²³ European Green Deal 2.1.7.

²⁴ Avila, L.V. et al. (2017). Barriers to innovation and sustainability at universities around the world. *Journal of Cleaner Production*, 164, 1268-1278. <https://doi.org/10.1016/j.jclepro.2017.07.025>

management is introduced in prisons, we could significantly reduce water use and at the same time minimize sewage emissions.

And finally, the use of human resources and the potential therein is not only exceptional, but can be a very good marketing tool, not to mention an easy fit with the prison objectives set out in the legislation.²⁵ Forestry in Hungary has always been a fragile business, especially in the plains. The task itself is simple, the difficulty in the competitive sector is more a question of employment (or lack of it) and equipment. For the penitentiary system, the employment issue is a given, and hopefully funding for the equipment will be forthcoming soon, according to the GD guidelines. Keeping security aspects in mind, tree planting/nurturing could be possible in the larger underutilized areas owned by prisons. In addition to the many reintegration guidelines and objectives (employment, education, training, cooperation with external organisations: NGOs, forestry, etc.), there is also an excellent opportunity for image development: the prison service, as it contributes to the restoration of Hungary's natural capital, environmental protection and biodiversity conservation. Besides, many other reintegrating and restorative programmes can also be linked to such an idea.

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Innovative Solutions for Teaching the History of Finance Guard – Presentation of Research Findings

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The study presents teaching methodologies used in the first-year course for students at the Faculty of Law Enforcement, specializing of financial investigators and customs and finance guard. Every one of these areas, as intended by the instructors, serve to deepen the student's understanding of the profession's history, in the context of Generation Z.

At the course's end (2022 and 2023), a survey among participants was carried out to assess whether and to what extent the history course and the accompanying excursion were suitable for the development of competencies that are of particular importance in law enforcement education. It also examined the effectiveness and how innovative the methods were perceived to be by the students.

Results: the survey clearly showed that the role played by students in history courses and the excursion was valued higher than that of the teachers and that both programs were seen as a valuable method of community building and/or strengthening.

The teaching of vocational history can prove to be successful and effective through well-established approaches, strengthening a sense of duty and professionalism in the students

Keywords: innovation, history of finance guard, methodology, competence, Generation Z

I. Introduction

The role of the history of profession, unquestionably belongs to the line of development and improvement of all vocations. Moreover, learning about professional historical backgrounds plays quite a significant role in fostering motivation. By the idea of the call of vocation, we presume not only the law enforcement bodies but all the professions that are regarded as vocations by scientific norms and standards based on their common features. Thus, we consider a vocation, among other professionals, belonging to clergy, healthcare, jurisdiction, and to education. Symbols, featuring identity-identification have also emerged in the financial inspector, and customs officer profession, with elements of professional culture as identifiable external features. Such symbols may include the uniform, rating, and various insignia on the uniforms, as the conventional Mercury-rod.³

Due to all these factors, the transfer of professional historical know-how within the framework of higher education heralds an outstanding importance. So that we may introduce the members of Generation Z to the realms and mysteries of the history of the customs officer profession and make the cluster of information relevant to this vocation adaptable, in 2018 our department initiated and elaborated a so-called professional 'adventure trip program' for the senior students accomplishing the course on the professional history of customs officers and finance guards. The significance of this project idea was reinforced by the Creative Learning Program⁴ within

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³ Adrienn Magasvári, 'A pénzügyőri szolgálat empirikus vizsgálata az utánpótlás- és hivatáskutatások tükrében', PhD értekezés. (Budapest: Nemzeti Közszolgálati Egyetem Közigazgatás-tudományi Doktori Iskola, 2020).

⁴ A biztos jövő egyeteme 2020-2025, (Nemzeti Közszolgálati Egyetem, 2020). <https://www.uni-nke.hu/document/uni-nke-hu/intezmenyfejlesztési-terv-2020-2025.pdf>

the Institutional Development Plan (2020-2025) of Ludovika University of Public Service as well as by the special award of Innovative Department obtained in 2021, which also involved an important core element in presenting the adventure trip.

It is the firm conviction of the authors that getting to know any profession one must learn about and deep dive into the history of that particular vocation, which may surpass the basic purpose of enriching common knowledge and may contribute to the promotion of customs officer identification, improve analytic skills, thus it can also foster professional development and integration into the profession. Other departments at the Faculty of Law Enforcement also deal with the dissemination of history of professions, this way with the history of policing, state border protection or history of law enforcement organizations.⁵

One of the core elements of researches on call of vocation is meant to be the history of profession and its segments, similarly for instance, the history of organization and legal status, human resource issues, or revealing the development, and evolutionary process of uniforms and ranks.⁶

Young members of Generation Z – where the new customs officer cadets involved in the research project also belong – may as well be considered digital natives who do not tend to adopt or cope with obsolete methods and outdated patterns. They need new approaches, new ways of communication, and educational methodologies adaptable to the personal traits and demands of Generation Z since the classic methods relying on iterative, verbal, or traditional communication manners and information sharing do not work anymore, or only in the few cases of highly motivated, diligent and interested students coming from ideal socio-cultural backgrounds with significant prior knowledge in the matter.⁷

II. Teaching the history of the profession and the adventure trip

Nowadays, when integrating into the realm of work – hence joining professional enforcement vocations – cooperative openness tends to be among the crucial prerequisites, which enable the elaboration of essential skills, competencies, knowledge clusters as well as core attitudes that altogether promote professional teamwork.⁸ Promoting all these traits has become the duty of higher educational institutions, however, the classic frontal educational methods and in-class activities do not provide the necessary framework for these ends. Moreover, it has become an increasingly important tool for the development of creative thinking skills, intellectual sophistication as well as preparation for teamwork along with facilitating all those skills that „*foster autonomous and efficient information processing and implementation.*”⁹

⁵ Tamás Kovács, 'Társadalomtudományok helye és szerepe a modern rendészeti felsőoktatásban', *Belügyi Szemle*, 70, no 10 (2022), 2061-2076.

⁶ Viktória Czene-Polgár, 'A pénzügyőrség szerepe a gazdasági bűncselekmények felderítésében 1945–56 között', *Magyar Rendészet*, 20, no 1 (2020), 13-21.; Adrienn Magasvári, 'Hivatása: pénzügyőr', in *Közös kihívások – egykor és most* ed. by Zágón Csaba and Andrea Szabó (Budapest: MRTT Vám- és Pénzügyőri Tagozat, 2020), 184-211.; Andrea Szabó, 'A Magyar Királyi Pénzügyőrség rangrendszere 1867-1947', *Rendvédelem-történeti Füzetek*, 27, no 54 (2017), 107-126.; Andrea Szabó, 'A pénzügyi igazgatás szervezeti keretei egykor és most a rendészeti feladatok tükrében', in *Szent Lászlótól a modernkori magyar rendészettudományig*, ed. by Gyula Gaál and Zoltán Hautzinger (Pécs: Magyar Hadtudományi Társaság Határőr Szakosztály Pécsi Szakcsoport, 2017), 351-356.

⁷ Hegedűs Judit 'Rendészeti felsőoktatásban tanuló hallgatók tanulási szemléletmódjának alakulása', in *Magatartástudományi kutatások a rendészeti képzés megújítása érdekében*, ed. by Judit Hegedűs (Budapest: Nemzeti Közzolgálati Egyetem, 2020), 51-64.

⁸ Viktória Kövecsesné dr. Gósi, 'A tanítás- tanulás módszertanának szerepe a tanítóképzésben', *Pedagógusképzés*, 18 (2019), 74–88. <https://doi.org/10.37205/TEL-hun.2019.ksz.06>

⁹ Gyöngyvér Molnár, 'Tudástranszfer', *Iskolakultúra*, 12, no 2 (2002), 65-74.; József Kaposi 'A történelmi gondolkodás és a képességfejlesztő feladatok', *Történelemtanítás*, 8, no. 1-2 (2017). <http://www.folyoirat.tortenelemtanitas.hu/2017/10/kaposi-jozsef-a-tortenelmi-gondolkodas-es-a-kepessegfejleszto-feladatok-08-01-03/>

However most of the complex knowledge items we gain from written texts,¹⁰ which pose a significant role in the educational processes, nevertheless these factors — along with the changes of our perception of knowledge — witness a generational shift.

Great bulk of previously printed knowledge items have also become available in digital format, hence the widespread application of the internet has generated new challenges within the framework of higher education.¹¹ The information explosion ever since the end of the 20th century „has evaporated the illusion of lifelong-lasting knowledge, the widespread use of cutting-edge online applications has elevated the importance of the use of information, namely the approach of ‘know how’ versus ‘know what.’”¹²

The application of new methods and tools is significantly affected not only by the demands of the labour market but also by the expectations of the students. The full-time students of the Faculty of Law Enforcement studying at the Department of Customs and Finance Guard, all belong to Generation Z, members of the first global generation who were born into the digital world, for whom the digital information explosion and technical developments are considered a natural habitat and for whom the old patterns and methods have become obsolete. So that we can raise their interests, call upon them, and make them hear and adopt our messages, we need new communication methods, new approaches, and new educational-pedagogical methodology customized to the needs of Generation Z, which may enable them to develop and deepen their set of skills and knowledge as well as to channel it into efficiently working systems. naturally, the classic knowledge transfer will not cease to exist, only the promotion of other skills, and competencies will become more emphatic including project work, creativity, problem-solving skills, gamification, and phenomenon-based learning. Altogether a new pedagogy focusing more on the outcome and learning results, where the lecturers step out from their primary role of sources and sharers of knowledge and turn into mentors, and supporters of learning. In other words, „from the previously prevailing function of knowledge transfer, the role of mentor, facilitator of learning, transmitter, interpretive and explanatory function will become emphatic.”¹³

Concerning the efficiency of education, it has been demonstrated that gamified phenomenon-based learning, where the student is actively involved in the learning process, solves creative tasks, and co-operates with his/her peers, proves to be significantly more efficient than traditional educational methods.¹⁴

The ‘History of Profession’ course can be taken during the second semester, comprising of 28 lessons, and closes with a colloquial exam. All the factors mentioned above were taken into consideration during the course elaboration process. The number of lessons involving direct knowledge transfer has been decreased while the part of practical resource analysis and activity-based lessons have been increased, which altogether have been supplemented with interactive learning management methods, such as pair and project work, or the history of profession adventure trip. Along the latter program, the lecturer would leave behind his/her frontal

¹⁰ Benő Csapó, *Kognitív pedagógia* (Budapest: Akadémiai Kiadó, 1992), 87.

¹¹ Ágnes F. Dárdai and József Kaposi, ‘Változó történelemtanítás Magyarországon 1990–2020. Trendek, mozaikok, mintázatok’, in *A TÖRTÉNELEMT@NÍTÁS a történelemtanításért*, ed by Ágnes F. Dárdai, József Kaposi and András Katona (Budapest: Magyar Történelmi Társulat, 2020), 15-60.

¹² Irén Vágó ‘Az oktatás tartalma’, in *Jelentés a magyar közoktatásról 2000*. ed. by Gábor Halász and Judit Lannert (Budapest: Országos Közoktatási Intézet, 2000), 169. <https://mek.oszk.hu/08400/08451/08451.pdf>

¹³ József Kaposi, ‘A hazai történelemoktatás dilemmái’, in *A TÖRTÉNELEMT@NÍTÁS a történelemtanításért*, ed. by Ágnes F. Dárdai, József Kaposi and András Katona (Budapest: Magyar Történelmi Társulat, 2020), 109-129., 117.

¹⁴ Márta Kis, ‘Élmény alapú oktatás a Budapesti Metropolitan Egyetemen’, in *XXV. Multimédia az oktatásban konferencia*, ed. by József Berke (Budapest: Ericsson Magyarország, 2019), 65-66. http://real.mtak.hu/97157/1/MMO2019_Proceedings.pdf

educational role as the primary source of information and turn into a facilitator who rather helps, motivates, and fosters students' activities.

The topic ramification of the course includes not only the more than 150-year old history of Customs and Finance Guard, yet it also provides a glimpse into the millennia-old history of taxation and customs collection, too.

Table 1: The topics of the history of profession course¹⁵

	For tax investigators students (RVPTB77)	For customs and finance guard students (RVPTB100)
1.	The development of taxation from the beginning in Hungary	
2.	The thousand-year history of customs	
3.	Customs in Hungary	
4.	150 years of Customs and Finance Guard	
5.	Interesting facts from the history of the finance and customs guard	
6.	The history of financial investigations before and after 1990	Customs and Tax History Museum
7.	The National Tax and Customs Administration's criminal investigation department	History of excise taxation

The special themes within the course topic are also broken down further into other units, where the lecturer can share the resource materials with the enrolled students through the Moodle educational platform. To complete the course successfully, students are expected to show active engagement in all the classes, furthermore, they must perform one presentation and a PPT related to the topics handed out at the first session, and they are expected to write a paper elaborating on the resources provided along the lessons.

The lecturer states the formal and contextual prerequisites for the assignments which are also available in the Moodle system. Before closing the course, the lecturer compiles a test from the various topics covered along the course, which, based on active attention and comprehension by the students would be easily doable. The final grade necessary to accomplish the course is given by a recommended grade with previous split grades displayed in the NEPTUN system. According to this scheme, the PPT presentation is worth max. 40%, the paper written another 40%, while the successful completion of the final test accounts for 20% of the final course grade.

The acquisition of the basics of research methodology, necessary for accomplishing the course takes place during the lessons or in the university library, where students can learn about the location of the primary resources of the history of their profession as well as may get a glimpse into the operation of the library. So, besides dealing with the resources uploaded into the Moodle system, students must get acquainted with the online or offline operation of the library as well as with the resources available over there which must be used for writing their seminal papers or elaborating their presentations.

We consider it important to spread the common knowledge elements among our students besides the firm acquaintance of professional know-how. For this reason, ever since 2018, we have organized a professional study trip for our students, which, on one hand, functions as a team builder program, on the other hand, it harmonizes with the university syllabus since it covers topics like the history of the profession, history of taxation, securities, and customs.

¹⁵ Source: Compiled by the authors.

When we elaborated the program we relied on the innate curiosity of our students, which according to Leszek Kołakowski, renowned Polish philosopher and historian of ideas, “*is an endemic non-trackable instinct.*”¹⁶

We cannot disregard the fact that our customs officer cadets, besides being members of Generation Z, also prove to be the participants of a very special law enforcement higher educational training course with special expectations, where the traits of an “ideal decent student” feature in being disciplined, obedient, adaptable, cooperative, punctual also with a great deal of professional zeal, vocation, and devotion.¹⁷

In other words, education also faces new challenges and newly emerging problems that need to be coped with new solutions and approaches.¹⁸ The ultimate purpose of gamification is to make a task more enjoyable, game-like, and entertaining — let it be a puzzle, a board or online game, inclusion of any form of sports or other games — to boost the activity and motivation of students.¹⁹ All these elements can be applied through the accomplishment of the history of the profession adventure trip.

Research findings reveal that the impact of mass media on the mentality of youngsters has significantly increased in the 21st century, their lifestyle being greatly affected by cyberspace and the use of a variety of ICT tools.²⁰ The digital natives – members of the generation present in higher education – tend to adapt swiftly to new IT devices and applications, and they use the ICT devices without restraints.²¹ Thus, these devices and impacts should be also applied in the service of education.

The ‘history of profession adventure trip’ does not recall and expects the reproduction of materials learned during the lessons. Rather it relies on the creativity, open-minded and combinational mentality and competencies of the students, thus holding the option of becoming a potential building brick of competence-based educational development. At the various stages of the gamified trip, students are not expected to recite or grasp the materials acquired from their teacher rather their active participation in processing and elaborating creative solution patterns is meant to be much more important. All these factors share outstanding importance within the project because without this kind of active participation – among others, through group work and task management – the ideal personality development, necessary for meeting the expectations of a modern economy and society, cannot be accomplished.²²

The history of profession adventure trip consists of a series of skill development tasks. Their primary features share our expectation from the students where we are curious about the demonstration of their creative and integrated problem-solving skills, information processing

¹⁶ Leszek Kolakowski, *'Kis előadások nagy kérdésekről'* (Budapest: Európa Könyvkiadó, 1998), 49.

¹⁷ Judit Hegedűs, 'Szemléletformálás a rendészeti képzésben', in *A magatartástudomány helye és szerepe a rendészeti képzésben*. ed by Judit Hegedűs, (Budapest: Nemzeti Közszolgálati Egyetem, 2019), 5-18.; Ákos Erdős, et al. 'Professional Career Choice and Career Startin Regards to the Expectations of Hungarian Law Enforcement Higher Education and of the Law Enforcement Organs', *Internal Security*, 12, no 2 (2020), 301-312.; Ákos Erdős 'Új generáció a rendészeti felsőoktatásban', in *Gondolatok a rendészettudományról. Írások a Magyar Rendészettudományi Társaság megalapításának tizenötödik évfordulója alkalmából*. ed by Gyula Gaál and Zoltán Hautzinger (Budapest: Magyar Rendészettudományi Társaság, 2019), 89-102.

¹⁸ Jenő Duchon, 'Tanulási stílus és játékos típus összevetése felnőtteknél, az oktatási folyamat játékosítása céljából', in *Tehetség, szorgalom, hivatás*, ed by Zágón Csaba, and Ágnes Zsámbokiné Ficskovszky, (Budapest: MRTT Vám- és Pénzügyőri Tagozat. 2021), 223-236.; Lajos Besenyey, 'A generáció váltás forradalma', *Opus et Educatio*, 3, no 4 (2016), 371–378.

¹⁹ Attila Körei and Szilvia Szilágyi, 'Didaktikai játékok integrálásának lehetőségei a felsőoktatásban', *Multidiszciplináris Tudományok* 10, no 3 (2020), 221–232.

²⁰ Csaba Jancsák, László Kojanitz, Maja Kósa, Gábor Ferenc Kiss and Mónika Mezei, 'A gyakorlaton alapuló kutatási tényektől a kutatási tényeken alapuló gyakorlatig', *Iskolakultúra* 31, no 11-12 (2021), 3-15.

²¹ András Buda, *IKT és oktatás. Együtt vagy egymás mellett?* (Szeged: Belvedere Meridionale Kiadó, 2017) 15-17.

²² Kaposi, 'A hazai történelemoktatás dilemmái', 109-129.

abilities, and competencies rather than making them recite the acquired knowledge during the lessons. This kind of creative intellectual challenge and sense of accomplishment may also provide them with an emotional surplus and high feeling at the end of the adventure trip.

This way the skill and competency-developing tasks, basically serve the role of recognizing and applying the new correlations and pieces of knowledge rather than rehearsing the acquired “routine methods” or best practices.”²³ Students can take part in the adventure trip by their course cohorts or in groups of max. 10-12 participants. Along the thematic trip, they may get to know various sights at different locations. The program starts from the venue of Ludovika Campus where the course leaders share the necessary information with the students, they also get their first task through which they may take them to the first destination on their quest. The fellows of our department pay close attention to the students on their quest, since the teams must check in at each checkpoint station – they must take pictures to prove their presence and task accomplishment at each station – and in the next stage, they may get their new assignment with new instructions. They have to prove their readiness and professional knowledge by solving puzzles and crosswords, however, they also have to cope with excerpts from literary works, legal texts, and newspapers with contemporary pictures.

It is the primary purpose of the trip to promote and cherish the traditions related to the profession of customs officers as well as to deepen the professional know-how of the participants. For this reason, the permanent major highlights of the trip include visits to the Museum of Customs and Taxation, where the students may not only roam around the splendid art nouveau style Schiffer-villa of the museum in Munkácsy street but in the same time they can deep dive into the history of Customs and Tariffs Authority and the predecessor institutions, the history of Hungarian taxation and may as well get acquainted with former and contemporary financial institutions by the professional guidance of taxation museum expert colleagues.

While the students can learn about the intellectual and physical assets of our cultural history, in the same way, they can improve their competencies, too, such as creativity, self-development skills, and cognitive competencies, such as combination, logic, systemization, information gathering, problem solution, coherence, and other related soft skills. Furthermore, we aim to foster community building, interactivity, and teaching through entertaining activities and to support the learning process.

At the beginning of the program, the only venue where the students were informed about the history of the customs officer profession through museum pedagogical activities was the Museum of Customs and Taxation under 19/B Munkácsy Street. Today, we have managed to involve three other institutions to be part of the ‘history of profession’ adventure trip, where professional expert colleagues (customs officers, museologists, librarians) contribute to the information sharing. This way we put on the list the following stations, to make it more colourful and enjoyable: the iconic venue of centuries-old customs officer training, the School of Customs Officers of Hungary (202 Harmat Street), Library of the Ministry of Finance (2-4 József Nádor square) Library of the Central Command of National Tax and Customs Administration (2 Szécheny street).

III. Method

We have completed the questionnaire-based survey with the students involved in the courses after the completion of academic years 2021/22 and 2022/23. The survey aimed to find out among the students whether the history of the profession adventure trip is applicable and eligible for promoting core competencies necessary in law enforcement education and among

²³ Kaposi, ‘A történelmi gondolkodás’

customs officer cadets, such as teamwork, cooperation, critical thinking skills, problem solution, or empathy.

We have applied and based our survey on the sample model questionnaire elaborated by the pilot project (Directorate of Virtual Customs and Criminal Investigation of the National Tax and Customs Administration) and scientific methodology cluster of the Creative Learning Platform of the Ludovika University of Public Service.²⁴

We have attempted to find answers to the research queries involved in the set of objectives of the survey using quantitative methodology.

The survey completion process was performed anonymously, individually, and voluntarily by the respondents.

The survey was distributed to all the participants of the course (2022 N=46; 2023 N=41), and in 2022 39 students completed it (84,7%), while in 2023 33 persons (80,4 %) answered the questions, which could all be assessed and processed.²⁵ As for the gender distribution of the participants, it showed an almost equal male and female respondent ratio. The students had to assess their general overall impressions related to the target dimension of course development objectives on a Likert scale of 1 to 5 (where 1 = totally disagree, and 5 = totally agree with the statement)

IV. Results and discussion

A Implementation of Course objectives

The KTP strategy defines a strategic roadmap where the essence of education is featured by innovation, student-centric focus, establishment of professional communities, and the promotion of individual development process. In the first part of the questionnaire, we have focused on the analysis of the implementation of these goals. The research findings have also supported our presumption that in terms of content both the adventure trip and the course share a streamline into the direction set by the objectives of KTP (Figure 1, 2). The feedback received from the students obviously refers to the recognition that compared to the experiences obtained from classroom-based university seminars and lectures the concept of the adventure trip and of the course proves to be quite innovative. The core concept of the course framework has consisted in the paradigm shift from a lecturer-centric, frontal education towards a student-centric or focused training course. The adventure trip calling the methods of gamified learning tasks altogether fostered cooperative teamwork, as well. According to the feedbacks assessed from the questionnaires on the course on history of profession, it has been revealed that the importance of students within the accomplishment of the adventure trip has significantly increased in comparison with the role of instructors and lecturers. Thus, education transforms into a sort of facilitated mentor-based task solution. The survey also showed that students do not insist or need to have this adventure trip organized later during the course terms, rather in the first academic year when its teambuilding role and function can be rewarding and beneficial for the establishment of students' communities, as also expected by the lecturers.

The assessment, and grading system of the course – which does not rely on a quick, few-minute long summative exam-type evaluation, but rather on the accumulated assessment of various assignments, essays, and presentations accomplished along the semester - was considered quite

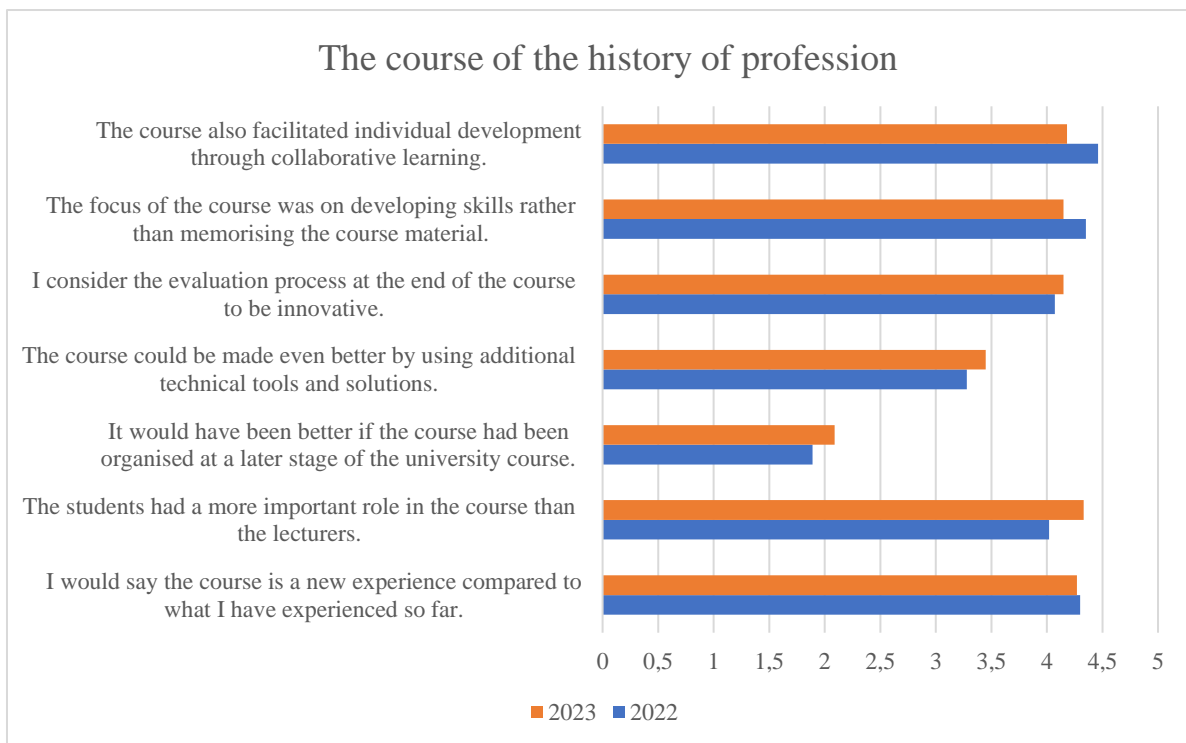
²⁴ László Christián, Ákos Erdős and Adrienn Magasvári, 'Képzési innováció a magyar rendészeti felsőoktatásban', in *„Tradíció, tudomány, minőség” – 30 éves a Vám-és Pénzügyőri Tanszék*, ed. by Viktória Czene-Polgár, Zágon Csaba, Andrea Szabó and Ágnes Zsámbokiné Ficskovszky (Budapest: MRTT Vám- és Pénzügyőri Tagozat, 2021), 62-77. <https://doi.org/10.37372/mrttvpt.2021.2.2>

²⁵ Viktória Czene-Polgár, Andrea Szabó, 'Innováció a pénzügyőri szakmatörténet oktatásban' *Neveléstudomány* 11, no 2 (2023), 44-54. <https://DOI: 10.21549/NTNY.41.2023.2.4>

innovative by the majority of students. Based on the responses of the participants it seems that we managed to achieve these goals by the end of the course.

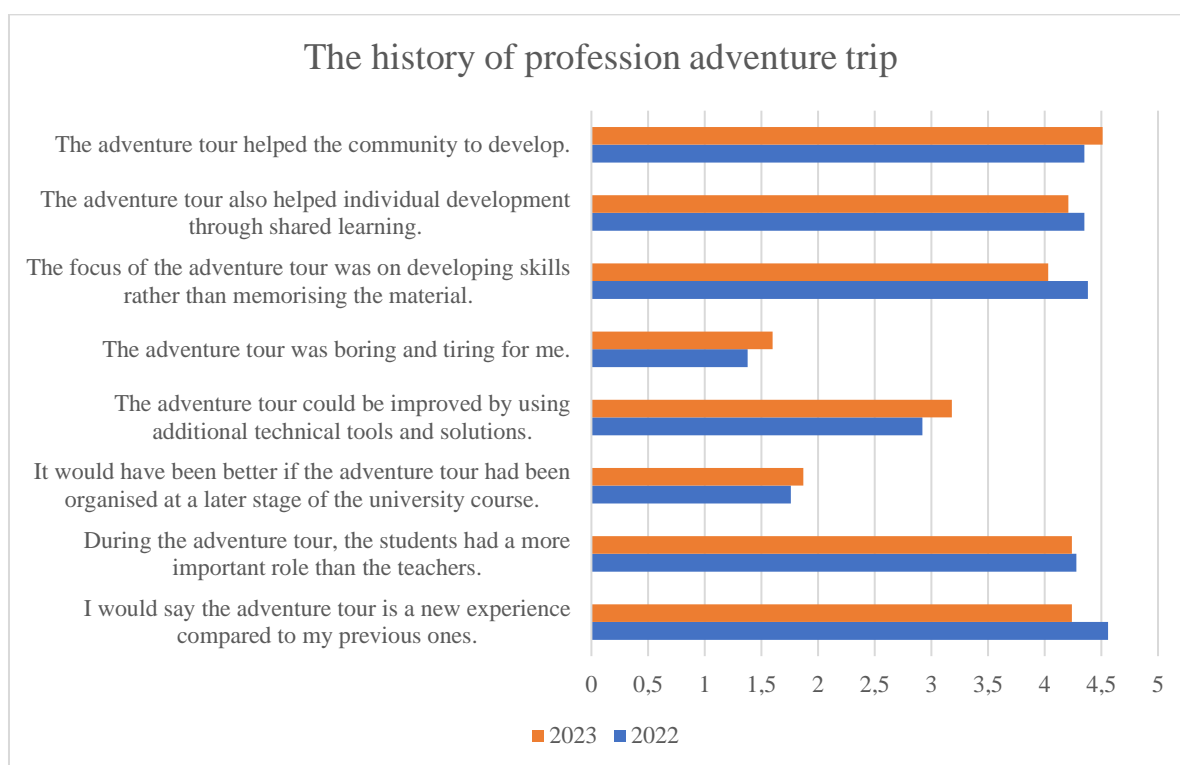
Students have mostly agreed with our statement that the historical course and the adventure trip are meant to play a significant role in team-building and strengthening the community. In this case, we have promoted not only the objectives of the KTP but also the sense of belonging to a professional community in other words the feeling of community identification. Ideas for improving the course have also emerged within the free answers in the feedback questionnaire, so the need for the application of popular online test sites, such as Kahoot or Quizlet, or the idea of showing video footage was also mentioned.

Figure 1: Average scores of the implementation of course objectives (2022 és 2023)²⁶



²⁶ Source: Compiled by the authors.

Figure 2: Average scores of responses given on the implementation of main objectives of the course on the history of profession adventure trip (2022 and 2023)²⁷



B Implementation of educational objectives

In the second section of the questionnaire survey, we tried to find answers to the question concerning the amount and ratio in which the 'history of the profession' course and the adventure trip have contributed to the accomplishment of the educational and training development goals set by the KTP. The responses given by the students participating in the survey were assessed according to five different training developmental target dimensions, such as 1. teamwork, cooperation; 2. critical and creative thinking, problem solution; 3. self-reflection and critique; 4. curiosity; 5. empathy. (See details in Table 2)

Table 2: Educational strategic goals (2022 and 2023)²⁸

Course 2022(2023)	Adventure trip 2022(2023)
Teamwork, cooperation	
I was almost always on my own to carry out the tasks assigned to me during the adventure. 2,05(2,27)	I was almost always on my own to carry out the tasks assigned to me during the adventure. 1,61(1,72)
I needed the help and work of my peers to complete most of the tasks successfully. 3,15(3,12)	I needed the help and work of my peers to complete most of the tasks successfully. 4,33(4,30)
I involved my peers most of the time in solving the problem in class. 3,41(3,36)	
Critical and creative thinking, problem solution	
Some of the tasks required new ways of thinking compared to previous classroom exercises. 4,02(3,90)	Some of the tasks required new ways of thinking compared to previous classroom exercises. 4,10(3,90)

²⁷ Source: Compiled by the authors

²⁸ Source: Compiled by the authors

Most of the time I felt that my ideas and suggestions were not needed when solving the tasks during the course. 1,74(2,03)	Most of the time I felt that my ideas and suggestions were not needed when solving the tasks during the tour. 1,76(1,81)
Many of the tasks required me to search the internet, legislation or teaching materials. 4,05(4,06)	Many of the tasks required me to search the internet, legislation or teaching materials. 3,56(2,84)
Self-criticism	
After the course, I feel I have a lot to learn. 3,02(2,90)	After the adventure course, I feel I have a lot to learn. 3,15(2,81)
The course confirmed that there is not much more they can tell me at university. 1,35(1,60)	The adventure course confirmed that there is not much more they can tell me at university. 1,53(1,36)
The course showed me that I still have to improve in many professional, theoretical areas. 4,23(4,09)	The adventure course showed me that I still have to improve in many professional, theoretical areas. 3,97(3,69)
Curiosity	
The knowledge gained during the course has also raised a number of professional questions in me. 3,74(3,18)	
Most of the tasks were boring for me. 1,53(2,00)	Most of the tasks were boring for me. 1,58(1,69)
During the course I came across a topic or task that I would like to deal with in more detail in the future. 3,71(3,27)	During the adventure course I came across a topic or task that I would like to deal with in more detail in the future. 3,71(3,45)
Empathy	
The course was a good way of strengthening understanding and listening to each other. 4,17(4,03)	The adventure course was a good way of strengthening understanding and listening to each other. 4,64(4,39)
The course helped me to better put myself in the shoes of others. 3,69(3,21)	The adventure tour helped me to better put myself in the shoes of others. 3,92(3,48)
The others did not provide support in solving the tasks. 1,56(1,75)	

According to the average scores reached by teamwork and cooperation segments, the course proves to be suitable and feasible for promoting teamwork and cooperation among students. Based on the responses we can conclude that along the course and the adventure trip, students are expected and covertly forced to improve their critical thinking and creative task management skills, too. The results also demonstrate that students regard their readiness, and preparedness rather critically as being aware of their handicaps and deficiencies in the field of professional know-how. In the case of the curiosity part-goal, we could assess that the history of profession course has raised the interest of the students. Furthermore, they even give a chance for future professional development and conducting academic research in this special field, or joining student science circles in the matter. The adventure trip certainly stirred their interest. Concerning the empathy goal focus, we have experienced that the course and the adventure trip have altogether boosted and fostered their cooperative skills and eagerness.

V. Conclusion

Students enrolled in the customs and excise administration and in the financial and criminal investigation BA programs in law enforcement of the Faculty of Law Enforcement at the University of Public Service may witness such a complex task system, which involves training

(acquiring general knowledge and intellectual fundamentals for the profession) education (as a rudimentary tool of law enforcement cadets' preparation process) and fieldwork-centric practical training and instruction.²⁹

All the same, we should not disregard of the important fact that the students belong to Generation Z, thus they must be tackled with customized generation-based educational methods and practical know-how. Such a classic subject as the history of the profession aims to transfer traditional values, however, it does not provide lexical knowledge only and solely but it also fosters the construction of the professional fundamentals of the law enforcement vocation.

All these factors tend to be supported by the research findings of the questionnaire survey, suggesting that students do appreciate the creative, innovative solutions in educational methodology. They seem to recognize all those areas of competencies wherein these courses tend to strengthen and improve them, such as cooperation, common thinking, empathy, need for professional development, critical thinking, and problem-solving skills.

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²⁹ László Christián, Zoltán Hautzinger and Gábor Kovács, 'A magyar rendészeti felsőoktatás jelene és jövője' *Magyar Rendészet*, 20 (Special issue) (2021), 13-21. <https://doi.org/10.32577/mr.2020.1.1>

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Challenges to the Education in the Law Enforcement Sector of Ukraine¹

Yuliia Halenko²

This article presents a number of the most common challenges to the education process in the law enforcement sector of Ukraine. Apart from the obvious reason such as war, which resulted in the loss of educational premises, forced displacement of the universities as well as the loss of personnel and students, English language teachers are facing the unprecedented loss of motivation in police cadets to learn foreign languages due to the provisions of the legislation of Ukraine in force, in particular, the engagement of translators/interpreters in the criminal proceedings at the pre-trial investigation stage. In spite of the reformation process in the educational sector connected with and based on NATO standards introduced in the teaching and learning processes, it is not always feasible to prove the students the obligatory nature of learning English or other foreign languages. Thus, foreign language teachers must overcome not only lack of motivation in students, but also implement higher standards of teaching in the educational process, which is not smooth either.

Keywords: English language, NATO standards, police education, EUAM, National Police of Ukraine

I. Introduction

Due to the new cooperation perspectives of Ukraine in the global community and integration into the international systems of counteraction in the law enforcement area, national higher educational police institutions undergo the process of urgent reforms. It is connected not only with the format of teaching and the obligatory content of the educational process, but also with intensive learning of the English language as an instrument of international communication, including professional sphere. The Ministry of Defense of Ukraine has already implemented particular NATO standards in its educational sector³ and currently the Ministry of Internal Affairs undergoes their implementation process as well.

II. Method

The Road Map for Enhancement of Learning Foreign Languages in the Armed Forces of Ukraine in 2021-2025 describes the strategic goal of learning foreign languages by the personnel of the Armed Forces at the CMP 2 (Level-2) *Functional* level under STANAG 6001 NATO standard according to G1200 *Language Requirements* goal of Ukraine-NATO cooperation.⁴

The Government Decree No 1490 as of December 30, 2022 has amended the Decree No 1410 *On the Implementation of Common System of Military Education*, in particular in terms of learning foreign languages. It requires achievement of the relevant level of foreign languages knowledge by the personnel of the defense forces to implement NATO standards and policies

¹ The author would like to express the deepest gratitude to the European Union Advisory Mission (EUAM) Ukraine for their precious support of Ukrainian law enforcement sector.

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³ *The Road Map for Enhancement of Learning Foreign Languages in the Armed Forces of Ukraine in 2021-2025* as of March 1, 2021.

⁴ *Ibid.*

in the operation of all branches of the military administration and efficient participation in the events connected with international defense cooperation, international peace and order provision operations as well as education abroad.⁵

Since higher educational institutions (HEIs) of the Ministry of Internal Affairs (MIA) of Ukraine are included in the military sector, the new provision fully relates to them as well. It is worth mentioning that two HEIs of the MIA of Ukraine – (i) Academy of the National Guard of Ukraine (website <https://nangu.edu.ua/>) and (ii) Kyiv Institute of the National Guard of Ukraine (website <https://kingu.edu.ua/>) – are included in the military defense sector and have been already engaged in the implementation of the above mentioned Road Map. Moreover, Academy of the National Guard of Ukraine trains specialists in 035 *Filology*, including professional translators and interpreters for military sector. Thus, the Road Map for the Armed Forces can be applied to the law enforcement and police HEIs with relevant amendments. Actually the amending of the basic Road Map is currently performed by our police universities, namely

1. Dnipropetrovsk State University of Internal Affairs (website <https://dduvs.in.ua/en/>)
2. Kharkiv National University of Internal Affairs (website <https://univd.edu.ua/en/>)
3. National Academy of Internal Affairs (website <https://www.naiiu.kiev.ua/en/>)
4. Odesa State University of Internal Affairs (website <https://oduvs.edu.ua/home/>)
5. Lviv State University of Internal Affairs (website <https://www.lvduvs.edu.ua/en/>)
6. Donetsk State University of Internal Affairs (website <https://dnuvs.ukr.education/about-us>)

But why do we need to undergo this hard and difficult process?

Ukrainian police forces, in particular, cyber police and organized crime combat units, are engaged in the international cooperation through Europol and INTERPOL agencies, which requires working under international and European standards as well as be able to communicate with colleagues from abroad most often in English using professional language, which consequently requires good command in English through its intensive learning during studies and advancing one's level while performing the duties.

Moreover, numerous NATO instructors have been working with the representatives of military and Special Forces of Ukraine for years, including special advisory missions, like European Union Advisory Mission (EUAM) Ukraine, which has organized complex trainings for the National Police, Rapid Operational Response Unit (KORD) and the National Guard of Ukraine in terms of providing public order under mass meetings and riots. However, the EUAM works with internally or externally engaged interpreters, while NATO accepts only English speaking individuals for its trainings.

Thus, the current task of law enforcement educational institutions among others is to make police officers communicate with and understand their foreign colleagues through learning English for law enforcement, which becomes a challenge due to numerous problems arising.

III. Results and discussion

Results are presented in three different sections: 1. Disrupted educational process; 2. Loss of personnel and students; and 3. Loss of motivation in students.

A Disrupted educational process – war in Ukraine affects the studies

It is well known that war in Ukraine began back in 2014. But then only two regions suffered from war hostilities apart from fully occupied Crimea – Donetsk and Luhansk regions.

⁵ Decree No 1490 as of December 30, 2022 *On the Amendments to the Decree of the Cabinet of Ministers of Ukraine No 1410 as of December 15, 1997* (Source <https://ips.ligazakon.net/document/kp221490?an=1>)

Traditionally Donetsk State University of Internal Affairs (Donetsk Law University that time) was situated in Donetsk city, while Luhansk State University of Internal Affairs named after EO Didorenko (it became the structural subdivision of Donetsk State University of Internal Affairs at the beginning of 2023 and was transformed in its Institute) was based in Luhansk city correspondingly. When the war began, Donetsk University moved to Mariupol and Luhansk University moved to Severodonetsk. However, they continued working hard and efficiently, and European Union Advisory Mission (EUAM) Ukraine even opened their regional office in Mariupol to help the displaced educational institution to continue providing high quality training for its cadets.

However, the large-scale invasion of Russian Federation on February 24, 2022 affected significantly the functioning of each and every MIA university in this or that way.

For example, both already mentioned universities were displaced for the second time. Donetsk State University was dispersed between three cities – Kryvyi Rih, Kropyvnytskyi and Zaporizhzhia, while Luhansk State University moved to Dnipro and was hosted by Dnipropetrovsk State University of Internal Affairs and then traveled to Ivano-Frankivsk. Currently being the one unified HEI the affiliates try to keep the university structure and continue the educational process. However, the EUAM has been assisting Donetsk University substantially by conducting open lectures for cadets, English professional literature and equipment required for practical classes in criminalistics in particular. Moreover, it very actively participates in international educational and scientific projects as a displaced HEI.

Premises of Kharkiv National University of Internal Affairs have been destroyed and in some cases even vanished completely after massive bombardings of Kharkiv city. The university tried to work as long as it was possible in the native city, but gradually it was also dispersed between several cities all over Ukraine. International activity and educational process were brutally interrupted due to the imbalanced functioning of the HEI. Currently they have found the opportunity to establish smooth educational process and scientific activity, but the temporary nature of their placement and destroyed infrastructure will drastically affect the entire operation of this educational institution.

National Academy of Internal Affairs residing in Kyiv also faced the destruction of university premises. However, they did not evacuate their personnel and cadets to other cities having invested all their efforts in volunteering. Anyway, they have managed to finish previous academic year online with many innovations introduced into the educational process.

Odesa State University of Internal Affairs continued functioning and stayed in Odesa, which was also heavily attacked with missiles by Russian fleet. Despite the danger cadets and teachers of the university participated in patrolling the city apart from studies, which has contributed a lot in practical performance of police duties in real situations. Odesa University was also supported by the EUAM mainly through open online and offline lectures for cadets.

Lviv State University of Internal Affairs situated in the western part of Ukraine in Lviv continued working having introduced close cooperation with the EUAM representatives, in particular Gediminas Bučiūnas, EUAM's Senior Adviser on Prosecution.

Finally, Dnipropetrovsk State University of Internal Affairs kept on operating actively almost without changes and avoided destructions of its infrastructure. The 2022-2023 academic year began offline and the educational process included simulation of actual war crimes through training future police officers correctly documenting results of the hostilities and, the most important, to work with forensic DNA analysis equipment in a modern criminalistics laboratory.

B Loss of personnel and students

(i) Loss of qualified personnel

The Decree of the President of Ukraine No. 259/2022 as of April 18, 2022 approved by the Law of Ukraine No. 2102-IX as of February 21, 2022 introduced martial law starting from 5:30 a.m. on February 24, 2022.⁶ Within the first days of the large-scale invasion female police staff received an opportunity to leave the country without any further consequences for them as the employees of the law enforcement sector. It is obvious that civilians did not have any obstacles for leaving the country and seeking for shelter in any other country of the world. Since the educational process interrupted by full-scale war in February continued in March online, teachers could hold classes from any part of Ukraine or literally any place on the planet. However, according to the internal Decision of the Ministry of Internal Affairs of Ukraine to start new academic year 2022-2023 on June 1, 2022 online and continue the educational process offline starting from July 1, 2022, educational staff members must have returned back in Ukraine despite of their status – a civilian or a police officer. Those who had doubts as for the entire staying in Ukraine used their annual vacation period having taken a pause in their cooperation with HEIs. But due to the firm order to return back in Ukraine and continue working offline from September 1, 2022 with further firing of those staff members, who would refuse of returning back, many teachers (mainly civilians) terminated their cooperation with the universities, having found new working places at the universities abroad. Moreover, within 2022-2023 academic year not only teachers, but also administrative and scientific staff members have left their positions and changed their comfortable cabinets to service in police units. Thus, experienced practitioners have been also lost. In addition, a number of teachers, lecturers and police professionals joined the Armed Forces of Ukraine, units of the National Guard and Special Forces Units of the National Police to defend the country. In the result, currently MIA HEIs suffer from the lack of professionals in their teams.

(ii) Loss of police cadets and students

This point is the biggest tragedy. First wave of losses was the reason of heavy bombings of cities, towns and villages of Ukraine. Unfortunately, some students have been simply killed in those missile attacks. There were also cases when police cadets decided to join Armed Forces or other military units to defend their Motherland instead. When the beginning of offline education was announced and cadets must have returned to their universities, some of them failed to leave the temporarily occupied territories due to the threat to their lives and were dis-enrolled in the result.

If to speak about civil students, they have taken an opportunity and massively left the country having escaped to other states all over the world seeking for shelter. We are deeply grateful to all the countries for their initiative to provide Ukrainian students with the opportunity to finish their interrupted education in home universities of hosting countries with the scholarships to support Ukrainian youth found themselves far from home. Many students continued studying online at our university in particular, but those who found broader opportunities left the university having stopped paying for their education, and that outflow of funds was so substantial that the financial situation led to reduction in payments to civil teachers and subsequent loss of personnel in the result.

C Loss of motivation

Learning English language is obligatory for all students in Ukraine despite of the specialty and field of study. However, if to speak about training future police officers the most obvious challenge is extremely low chances to use English in their entire career.

⁶ Decree of the President of Ukraine No. 259/2022 as of April 18, 2022.

Art. 9 of the Law of Ukraine *On Functioning of Ukrainian Language as an Official One*⁷ defines persons who shall be proficient at Ukrainian language and use it during the performance of their duties, in particular:

1. middle and top managers of the National Police, other law enforcement and intelligence bodies;
2. privates, sergeants and senior staff of the National Police, other law enforcement and intelligence bodies;
3. prosecutors;
4. judges elected or assigned in accordance with the Constitution of Ukraine and perform judgment on professional grounds;
5. lawyers;
6. notaries.

Provisions of Art. 10 part 1 of the Constitution of Ukraine⁸ stipulate that the official language in Ukraine is Ukrainian language and is an obligatory means of communication at the whole territory of Ukraine at performing duties by state power bodies and self-government bodies (acts, work, administration, documentation) as well as in other public areas stipulated by Art. 10 part 5 of the Constitution of Ukraine.

According to Art. 26 of the Code of Ukraine *On Administrative Violations*⁹ police officers shall communicate with citizens of Ukraine and foreign citizens, who are not proficient at the state language, in Ukrainian or the language they are proficient at.

In accordance with Art. 29 *Language of the Criminal Proceedings* of the Criminal Procedure Code of Ukraine¹⁰ criminal proceedings shall be performed in Ukrainian language. Prosecution, investigative judges and court write procedural documents in Ukrainian. Investigative judges, prosecutors or court provide the participants of the criminal proceedings non-proficient at Ukrainian the right to witness, claim and give testimony in another language they are proficient at engaging a translator/interpreter in accordance with the provisions of the Code.

Art. 63 of the Code of Ukraine *On Criminal Procedure*¹¹ stipulates engagement of an interpreter for interrogation, witnessing, handing materials of pre-trial investigation, participation in court proceedings and other relevant procedural actions.

In accordance with Art. 68 of the Criminal Procedure Code of Ukraine *Translator / Interpreter*¹² parties to criminal proceedings, an investigative judge or court have the right to engage a translator/interpreter (a sign language interpreter) whether it is required to translate explanations, testimony or documents in terms of criminal proceedings.

Translator/Interpreter has the right to:

1. ask questions for clarification aiming at accurate translation;
2. make acquainted with protocols of procedural actions he/she participated in and make amendments;
3. get a reward for performed translation and recovering of expenses connected with the engagement in criminal proceedings;
4. claim for security provision in cases stipulated by law.

Translator/Interpreter shall:

1. arrive on call to an investigator, prosecutor, investigative judge or court;
2. declare self-recusal in case of circumstances stipulated by the Code;

⁷ Art. 9 of the Law of Ukraine *On Functioning of Ukrainian Language as an Official One*.

⁸ Art. 10 part 1 of the Constitution of Ukraine.

⁹ Art. 26 of the Code of Ukraine *On Administrative Violations*.

¹⁰ Art. 29 *Language of the Criminal Proceedings* of the Criminal Procedure Code of Ukraine.

¹¹ Art. 63 of the Code of Ukraine *On Criminal Procedure*.

¹² Art. 68 of the Criminal Procedure Code of Ukraine *Translator / Interpreter*.

3. perform complete and accurate translation and certify the correctness of translation with his/her signature;
4. not disclose information directly related to essence of the criminal proceedings and procedural actions performed during criminal proceedings, which a translator/interpreter has become aware of in connection with his/her duties, without permission of an investigator, prosecutor or court.

Basing on the laws of Ukraine on using Ukrainian language and engagement of a translator/interpreter it can be noted that police cadets who are not interested in learning English or other foreign languages can always justify their unwillingness with official sources, which clearly stipulate the engagement of a professional translator/interpreter in criminal proceedings at the stage of pre-trial investigation whether necessary.

Preventive activity police units have the lowest chances to meet a foreign violator during performing their duties, since they mainly work in the assigned community with local people. Criminal police units may be engaged in the investigation of criminal activity organized or conducted by foreigners at the territory of Ukraine, but based on the available experience those foreigners all speak Russian and understand Ukrainian even if they pretend not to understand a word. For such cases the law provides the National Police the right to engage an interpreter to build a dialogue with criminal(s).

Pre-trial investigation units have bigger chances to meet foreigners who violate rules, regulations or laws of Ukraine. However, even if they manage to communicate with a foreigner in Ukrainian, Russian or English, in any case documents of the proceedings and communication with a prosecutor requires engagement of a translator/interpreter in accordance with the legislation of Ukraine.

Strategic investigation units are more likely to be engaged in the international investigation process, since they sometimes work with Europol and INTERPOL. Previously each strategic investigations department had a position of a translator/interpreter. Mainly civilians occupied those positions, though police officers who knew foreign languages at a relevant level could work there or even receive higher salaries occupying any police position just due to their knowledge of a foreign language. It was really some kind of motivation for such police officers. Currently those members of the staff who know foreign languages are engaged in international investigations without extra payment or rewards. Thus, only those students who are interested in learning English due to their own will and personal interest are active at the English language lessons. Others either learn the required volume to pass an examination before graduation, or do not learn the language at all making no efforts to obtain at least the minimum knowledge.

To motivate students to learn English our teachers introduce numerous competitive and interactive tasks, use different platforms and bring many authentic materials to make the learning process more interesting and involving for cadets with any level of preparation. A separate element in the educational process is the engagement of foreign practitioners to deliver special lectures on professional topics or communicate with cadets in English discussing issues interesting for them.

The most active participation is seen from the European Union Advisory Mission (EUAM) Ukraine. Its trainers are highly experienced and competent specialists from the EU member countries, who have been taking an active part in training and educating representatives of the law enforcement sector of Ukraine starting from December of 2014 aiming at achieving *a civilian security sector that is efficient, accountable, and enjoys the trust of the public*.¹³ EUAM trainers have been engaged in numerous trainings and specific lectures for cadets as well within the years of their mission in Ukraine, but... they are accompanied by interpreters at every event

¹³ EUAM Ukraine official website <https://www.euam-ukraine.eu/>

or during any training to be able to communicate the essence of presented material for each and everyone despite of their English level.

However, we really see the interest in those cadets who obtain an opportunity to meet their foreign colleagues and to learn from their professional experience, communicate with them using all their knowledge from the English classes and what they appreciate especially is authentic accessories of foreign police units presented to them by visiting practitioners. Moreover, this is the sign that Ukrainian police force is noticeable for our European colleagues and thus we all feel their endless precious professional support, which we are in need now.

In addition, our partner universities from the European Union and within the Association of European Police Colleges (AEPC) conduct online and (which is much more important) offline educational thematic sessions open not only for practitioners, but also for police cadets, but only for those ones who are able to study and communicate with their peers and tutors in English. Such programs really boost interest in learning foreign languages in youngsters and create a type of competition among those who have relevant language competencies.

Thus, any contact with colleagues from abroad and necessity to use English as the only communication instrument proves the significance of learning foreign languages and helps profile teachers to engage more students in the learning process with receiving higher results.

IV. Conclusion

Since Ukraine is intended to be the active participant of the global community and due to the integration into the international systems of counteraction in the law enforcement area, national higher educational police institutions undergo the process of urgent reforms, including intensive learning of the English language as an obligatory instrument of international communication. Thus, the Ministry of Internal Affairs of Ukraine is currently implementing particular NATO standards in the educational process within the training of law enforcement staff, though the educational system of Ukraine has been facing significant challenges during the last 1.5 years, in particular disruption of the educational process as the result of the large-scale war, loss of experienced personnel and students/police cadets as well as loss of motivation in students to learn foreign languages, which is grounded on the legislation of Ukraine stipulating the necessity to engage a translator/interpreter during counteraction between foreign citizens and the National Police. In addition, cooperation with such international agencies as Europol and INTERPOL is currently not widely introduced for the biggest part of police subdivisions, while trainings for police officers conducted by international missions, such as European Union Advisory Mission (EUAM) Ukraine, are accompanied with professional translation.

However, international events organized for police cadets and already experienced practitioners, including professional lectures, webinars, trainings, educational courses and conferences, which provide an opportunity not only to advance their knowledge and skills, but also share their own experience with colleagues from abroad, substantially boost the motivation in students to learn foreign language of professional use to be able to communicate with their professional peers, establish contacts for further cooperation within the entire service and advance their professional qualification to be aware of international trends in crime investigation, crowd control, DNA sampling and sample analysis, extradition of criminals or violators wanted by INTERPOL/Europol and many other enhancements in every field of law enforcement sector.

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Law Enforcement UrbanGo: Mysterious Budapest – The Experiences of a Citybound Game in Law Enforcement Higher Education

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Law enforcement higher education faces several challenges in the past couple of years (new generation requirements, competence-based learning) that calls for the trial and incorporation of new methods into our courses. Experiential education, gamification and project pedagogy are methods used more and more often in modern pedagogy, even in higher education. The integration of new methods into the teaching process, the power and possible outcome of these is covered in several scientific articles focusing on teaching methodology³ (Csikósné, 2019; Mezeiová – Bencsik, 2019).

This present study is about our take on experiential education and gamification at the Department of Behavioural Sciences and Law Enforcement at UPS: a citybound detective game which we called „Mysterious Budapest”, and planned for our 1st-year police students.

Students were strolling around Budapest in 4-6-member groups looking for locations where significant crimes took place. The crimes were thematized so there were locations connected to organized crime, homicide, the dangers of police work, etc. Students not only had to find these places but, on their way, they had to solve different tasks to earn points. Group work started with the planning process as the groups had to collectively decide the itinerary and the tasks to be done. At the end of the day presentations were held on the collected information and challenges faced and solved.

First-year students come to our courses following a 6-week-long basic training⁴, where their physical endurance and their willingness to accept the rules of law enforcement (adhering to a strict daily schedule, obeying commands, accepting hierarchy) are on trial. After the rigid framework of the previous weeks, it is always exciting to see how students function in relative freedom.

In the following pages we are summing up the experiences of this citybound game, reflecting on the ways of improvement and the possible positive outcomes of it in law enforcement higher education.

Keywords: competence-based learning, gamification, experiential education, project pedagogy, good practice

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⁴ Erdős, Ákos (2019): A rendészeti tisztté válás első nehézségei. A gyermeki elképzelések találkozása a realitással. *Új Pedagógiai Szemle*, 2019 1-2, 76-99.; ⁴ Erdős, Ákos – Magasvári, Adrienn – Szabó, Andrea (2019): Új generáció a rendészeti felsőoktatásban. In: Gaál, Gy. - Hautzinger, Z. (szerk.): *Gondolatok a rendészettudományról. Írások a Magyar Rendészettudományi Társaság megalapításának 15. évfordulója alkalmából*. Budapest: Magyar Rendészettudományi Társaság, 89-102.

I. Challenges in Higher Education. New Generations.

It is beyond question, whether we subscribe to the generational theories and approaches or not, that new generations arrived in universities, and it does not only influence law enforcement higher education but presents a specific challenge in all areas and fields of higher education. New generations also come with altered motivation. Teachers are dealing with a diverse group of students (and here we are talking about diversity in gender, ethnicity, religion, and social background)⁵, parts of whom are non-traditional students. Being non-traditional means that they are often first-generation university students, so their parents do not possess college or university degree – and it implies that, in a way, universities lost their ‘elite’ status by becoming more open to the ‘masses’.⁶⁷ By being first-generation students their motivation to learn a specific field of science may be different, as well. Their status as university students may not be embedded and rooted in a deep desire of knowledge and – according to the student integration theory⁸ – their commitment to a certain institution is disputable and more shakeable (which, in the long run, may become a financial-economic question, which this present study does not wish to address).⁹¹⁰

We cannot go on without referring to the specifics of generation Z (or zoomers), which is characterized by short-term attention span, a hunger for more visual and entertaining content in the classroom. For Gen-Z, frontal education is often less fulfilling, so teachers must consciously move towards more interactive methods, rather than using frontal education methodology. The role of the teacher is changing, as well: they turn into facilitators more than omniscient entities in the classroom, their task becomes to inspire creative ideas, to let students use their experiences to construct collective knowledge, and, if needed, frame this knowledge into a theoretical context. The methodology used should be various, such as group works, project works, discourses and disputes, just to list a few.¹¹¹² It also means that the need for gamification and gamified knowledge-transfer appears.¹³

II. New Tools in Higher Education

Below, we are going to list a couple of these new methodologies that may be helpful when facing new challenges in education. The list is not exhaustive, it serves only to give an overview of the available tools, but the approach of all of them can be found in the good practice that we introduce later in the study.

⁵ Hu, Shouping – Kuh, George D. (2003): Diversity Experiences in College Student Learning and Personal Development. *Journal of College Student Development*, 44. 3: 320-334.

⁶ Pusztai, Gabriella (2013): Kapcsolatok a felsőoktatási intézményben. In: Pusztai, G. (szerk.): *Láthatatlan kéztől a baráti kezéig*. Budapest: Új Mandátum Könyvkiadó, 105-129.

⁷ Hrubos, Ildikó (2006): A 21. század egyeteme. Egy új társadalmi szerződés felé. *Educatio* 15/4, 683-685.

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¹¹ Knowles, Malcolm S. (1980): *The Modern Practice of Adult Education: From Pedagogy to Andragogy. Revised and Updated*. New York: Association Press

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¹³ Mezeiová – Bencsik (2019): A játékosított tudásátadás igénye a felsőoktatásban.

A Gamification

The inspiring nature of games – whether it is a board game, an adventure game, an escape room game – is another axiom that does not need to be justified.¹⁴ However, the role of games in education is something that should be talked about as it only goes back to a couple of years that they appeared in the discourse as possible means of education (especially in the sphere of higher education). Games in education will enhance students' motivation by building upon their curiosity, their need for constant challenges, their fantasy, their competitiveness, and their (self)regulatory behaviour.¹⁵ Knowledge acquired through games will be more smoothly anchored due to the psychological processes in the participants that accompany the positive sensations during playing a certain game, thus making it possible for the material to be digested more effectively.¹⁶ There are certain requirements, though, that have to be met: the game should have a fixed pedagogical aim, it is beneficial if it is embedded in a story and if points and rewards are assigned to the competition at the end.

B The Benefits of Experiential Education

When we talk about experiential education, we basically talk about applied knowledge that is gained by experiencing a certain incident, one's own faults, boundaries, by being able to accomplish – as simplified as it sounds. Experiential education builds on the students' independence, which is a strange requirement when we talk about law enforcement higher education. The to-be-introduced good practice that the authors of this study developed is designed for our 1st year students, and it is practiced the very first day after they finish their intensive basic training that serves as a means of socializing into law enforcement culture. After experiencing a very strict, very rigid system, we ask them to work with their creativity and independence. Students are often not sure what to do with their suddenly earned freedom¹⁷ and they need some time to ease into the new learning environment. The prerequisite of the method is that the theme we use should be close to the theme of the course within which we try it, and it always has to have an evaluation and reflexion, the best, if we do it together with the students and allow them to reflect on themselves, each other, the processes.¹⁸ The outcome of such methodology may be the improvement of reflection and evaluation, the strengthening of social skills by social/group experience, problem solving skills and cooperation will be enhanced as well as creativity and diverse thinking. Validation of the students' own skills is also more available through the means of experiential education.¹⁹

C The Relevance of Project Pedagogy in Education

Project pedagogy may be summing up all the methods above as it is an opportunity for the students to learn independently, to use their knowledge in a practical way, so enhance their social skills and their self-regulatory behaviour. Project pedagogy is also a means to awaken competitiveness in students. Which, when we think about it, are the requirements of modern society. From a more philosophical and behavioural science point of view, we may conclude,

¹⁴ Csikósné Maczó (2019): A gamifikáció felsőoktatási alkalmazásának lehetőségei.

¹⁵ Malone, Thomas W. – Lepper, Mark R. (1987): Making Learning Fun: A Taxonomy of Intrinsic Motivation for Learning. In: R.E. Snow – M.J. Farr (Eds.): *Aptitude, Learning and Instruction: III. Cognitive and Affective Process Analyses*. Hillsdale, NJ: Erlbaum, 223-253.

¹⁶ Frommann, Richard (2017): *Játékoslét. A gamifikáció világa*. Budapest: Typotex

¹⁷ Erdős – Magasvári – Szabó (2019): Új generáció a rendészeti felsőoktatásban.

¹⁸ Kolb, David A. (1984): *Experiential Learning*. Englewood Cliffs, NJ: Prentice Hall

¹⁹ Eyler, Janet (2009): The Power of Experiential Education. *Liberal Education*, Fall, 24-31.

that project pedagogy helps the development of one's personality by allowing the students to explore the possibilities and boundaries of their own knowledge and competence.²⁰

III. Competence-based Education in Law Enforcement

We have been talking about the need for competence-based teaching and learning in law enforcement higher education since the 2010s²¹, however, it was only realized in year 2019 when, ordered by the Ministry of Interior, a research started to outline the basic competences that are (1) required, and (2) to be acquired by everybody willing to work in the law enforcement system (any branches). Malét-Szabó and her colleagues defined 12 basic competences in their research. These are the following:

- **decision making**
- **cooperation**
- emotional intelligence
- **responsibility taking**
- **firmness and confidence**
- **effectiveness**
- **communication**
- conflict resolving skills
- **independence**
- **problem solving skills**
- psychological durability
- compliance and discipline.²²

Students are measured for their own level of competences before they enter Ludovika University of Public Service and at the end of their university years, just before they start their service as law enforcement officials. The competences highlighted in the above list are addressed in the good practice introduced later in the paper, as we designed the game so that students will be able to specifically experience and reflect on the areas most needed and/or to be developed.

IV. UrbanGo Designs in General and Mysterious Budapest

UrbanGo games are originally designed to be like escape room games or treasure hunts and one may find many UrbanGo designs. There is usually a mystery to be solved or a story to be unravelled, but the setting is – unlike escape room games, not a room or apartment but – always the city itself. Players will travel from one stop to the other, solving puzzles and facing challenges in the meantime.

The most popular UrbanGo is when a small team is roaming around a walkable area of the city and when they reach an assigned stop, they will have to solve a puzzle or a challenge to receive the location of the next stage. This game type is called the linear-structured-game. Stages follow each other in a given order, the number of people in a group is usually 4-6, and there is only one team on the field at a certain time.

²⁰ Zhylykybay – Magzhan – Suinzhanova – Balaubekov - Adiyeva (2014): The Effectiveness of Using the Project Method in the Teaching Process

²¹ Krémer, Ferenc – Molnár, Katalin (2010): A szociális kompetenciák szerepe a mester szintű rendészeti képzésben. *Rendvédelmi Füzetek*, 2010/2, 21-32. o.

²² Malét-Szabó, E. – Hegyi, H. – Hegedűs, J. – Szeles, E. – Ivaskovics, K. (2018): Rendőri alapkompentenciák az egységes közszolgálati alapkompentenciák tükrében. *Rendőrségi Tanulmányok* 2018/1, 24.

The hours sacrificed for solving the mysteries are usually spent with creativity, joy, excitement and laughter and it requires participants to think outside the box or to try to broaden their comfort zone. When planning *Mysterious Budapest*, we kept in mind that our theme needs to be something attractive enough for future police officers (ie.: related to crime or police work) as well as based on universal knowledge (this is a main difference from average UrbanGos as they usually do not require such [often lexical] knowledge). We also wanted to highlight, throughout the tasks added in the game, the law enforcement competences discussed above.

A *Planning the Game*

Considering the original game design outlined above, we had quite a few challenges to face when starting to develop our own game. We wanted to create a game which can be played by 60-80 people at one time – in synchronicity with the number of students we teach –, which means about 12-20 groups being out in the city at the same time. We already knew at the beginning that it requires quite a solid basis and background, organization of the game, and good leadership from the designers and teachers, who will use the method. We had diverse players, and our aim was to create a game that can be enjoyable for all our students at the Faculty of Law Enforcement – regardless of their major. We also needed to find a way to partially monitor the movement and actions of the teams on the field (so that we can be of assistance when needed). Teams left the Campus at 9 and arrived back at around 12 o'clock, so we needed a good tool to keep in touch with them during these hours. Not to mention, that we were quite afraid of the reception: if our students are not motivated enough by what we created, they will only stray or fool around without achieving much.

According to the original game design, when a team arrives at a stage, they solve a puzzle there and the solution unfolds the location of the next stop. So, in this game design, there is always a task waiting for the group at the given stop. The task can be anything: participants may count, may recite, may solve a riddle, may walk around to find cues – the rule is that the location of the next stop is only given to them at that stage after working for the answers. When thinking about the tasks we bore in mind that we wanted to improve their problem solving- and strategic thinking skills, as well as their ability to cooperate with each other and with the city.

B *Mysterious Budapest*

After we managed to answer all our queries listed above, we started to mould our game into its final form. Our *Mysterious Budapest* game covers 32 different scenes, more than 20 of them being the scene of a well-known crime, divided into six different topics. Our aim was to enlist as many types of famous crimes as possible, not only recent ones but across decades, trying to address the fields of the different police majors at our university so that everyone's needs and interests are met. Our topics were the following: (1) crimes related to organized crime, (2) crimes committed at local pubs, (3) crimes against police officers, (4) murders, (5) robberies, (6) crimes related to prejudice. We needed to select the locations in the same topics in a way that they are close enough to each other so that the game can be finished within the 3-hour-long time frame. As the theme of the game was partially given – major crime scenes of the capital – we worked with fixed locations, 4-6 locations for each topic. The topics were given to the teams in envelopes in a random draw.

Before leaving the Campus, the teams had to find a name by which they went during the game, and they also had to sit down and design their route (addressing the competences of cooperation, communication, and effectiveness).

We finally decided to choose Facebook's Messenger to keep in touch with the students. We created chat groups, and the leaders of the groups could send the groups' assignments via Messenger to the dedicated teacher.

C The structure of the game

The way Mysterious Budapest turned out is not easy to explain as it is quite complex among the UrbanGo designs. We realized that if we build the game into a competition (between small groups) it may make it more interesting for our students. So, we assigned points to each task and this way the teams could collect points by accomplishing the assignments. Students not only had to follow the steps of different crimes from the same topic to unfold mysterious stories, but they also had to face challenges during their trip. We grouped the challenges into 3 groups: (1) mandatory crime scenes that the team needs to visit, (2) optional crime scenes for extra points, (3) simple tasks that can be solved at any time the team chooses. Naturally, the more scenes the team visits, the more tasks the participants solve, the more points they earn. This was our idea of transforming the game into a competition, hoping that being involved in a contest will make the students more motivated towards the game.

We established a protocol for how the communication should go: when the team arrives at the scene, they send their teacher a selfie. The teacher gives them 3 questions connected to the crime that took place there. Students can use their phones to look up the answers and when they have them, they will send them to the teacher. By giving them questions concerning the crimes we wanted to make our students to dig deeper into the history and context of the given crimes (ie.: Skála murder, the assassination of János Fenyő at Margit boulevard, the explosion at Aranykéz street, Elza Mágnás's murder, murder and robbery at Fő street, the escape of "Viszkis", the death of Dusán Radovic, the list is non-exhaustive), and, to experience the richness of our mysterious capital. This way, we might be able to awaken our Gen-Z students' curiosity to Hungarian criminalistics and the depths and mysteries of police work, while, at the same time, making them improve their group work techniques, communication, and problem-solving skills.

After answering the questions, students will choose a mandatory task to complete from the task list (ie.: interview with a passer-by about the crime that took place there; "live" crime scene report; photo reconstruction), the proof of which will also be sent to the teacher. When they finish, they run off to the next scene (and may choose to do an extra, optional, challenge while getting there).

D Outcome and Experiences

No matter how exciting it is to stroll around the city trying to look into the most notable crimes in Hungarian criminalistics, the game should always have an outcome/purpose. The purpose of a game in education is never solely entertainment but always the improvement of soft skills. First of all, even though we are talking about a game, it is still created based on a strict set of rules. For example, when a group arrives to a location, the members have to follow fixed orders in order to receive the questions with the help of which the crime committed at that location can be more thoroughly explored.

Earlier in this paper the authors referred to law enforcement competences and the need for competence-based learning (see section III). According to our own experiences, as well as the feedback of the students, Mysterious Budapest develops several of these competences. First of all, the ability of following such rules, builds heavily on discipline.

The hardest task, based on these feedbacks, was to talk to a passer-by, as people in big cities tend to be less friendly and more distrustful towards young people coming up to them. So solving this challenge requires a great deal of confidence and communication (which is, at the end of the day, a basic tool of a police officer). When planning – or sometimes re-planning – the itinerary, students come across the need for cooperation (the game itself is a cooperation with the city, people living in the city and the members of the group walking around the city) and they make good use of their problem-solving skills as well. However, we may state that strategic thinking is not the strongest point of our Gen-Z students: even though they are given

at least 30-40 minutes to plan their route, they tend to neglect the planning stage and they prefer storming out of the classroom to start the challenge as soon as possible. This deficiency later calls for re-planning and self-reflection.

We asked our students to create a presentation about the crimes they were “investigating”, in each and every case reflecting to the challenges faced or the occurrences when they had to overstep their limits and boundaries. Thinking carefully about these difficulties allows them to dive deep into the areas that need to be improved and it also lets us, teachers, to get an idea of the students we are working with throughout the term. Creating a presentation is also a great opportunity to work in a group, to learn how to collaborate with each other – as these two are very important abilities in the field of (police) work. It also lets students effectively filter data and focus only on the most important pieces of information during the 10-minute-presentations, which is a basic communication skill. The overall aim of the presentations is that the students reflect on their (the team and themselves as individuals) strengths, weaknesses, the greatest challenges faced and solved, so it relies heavily on the soft skill of self-reflection.

Through the game, students will face independence the first day after their intensive basic training, which they have to use wisely and it requires a great deal of self-regulation, as well. Sometimes us teachers realize, that though it is not always easy for students to articulate (or even spot) these soft skills that are “in action” during the game, these are being improved nonetheless.

V. Closing Words and the Way Forward

Mysterious Budapest is a game we designed and piloted in 2022. We believe that the designers’ work does not end with the last brushstrokes but we constantly have to monitor the game’s reception year after year, digest our students’ feedbacks, reflect on our feelings towards our product and plough all these experiences back in the game in order for it to be an ever-living, ever-breathing creature. If we want to have a dialogue with our students in this challenging era of higher education, we need to persistently revise our methods. We believe that interactive games like Mysterious Budapest give us the opportunity to meet our students half-way: to offer them an exciting and different tool without losing the opportunity of developing skills and – most importantly – without betraying scientific thinking, which, after all, is born at universities.

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Artificial Intelligence in Modern Policing – Exploring the Multifaceted Impacts

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This article comprehensively examines the multifaceted impact of artificial intelligence (AI) on modern law enforcement, considering stakeholders, societal implications, and results analysis. In an era of rapid AI advancement, law enforcement increasingly leverages AI for enhanced operational efficiency, public safety, and addressing challenges. The paper begins with predictive policing, using machine learning to analyze historical crime data and predict hotspots, exploring its impact on stakeholders and societal implications. The role of AI in investigative processes, particularly facial recognition aiding suspect identification and forensics, is assessed with attention to privacy, accuracy, and transparency. AI's role in digital forensics and cybercrime detection is discussed, emphasizing stakeholder involvement, ethical concerns, and the balance between privacy and security. Integration of AI in police operations and resource management is examined, focusing on AI-driven decision-making, optimized patrols, resource allocation, and emergency responses.

Keywords: artificial intelligence, modern policing, predictive, investigations, digital forensics, facial recognition, law enforcement.

I. Introduction

A Background and significance

The integration of artificial intelligence (AI) into modern policing represents a transformative juncture in the evolution of law enforcement practices. As technological advancements continue to reshape society, the application of AI within the realm of policing has garnered increasing attention and significance. AI, in the context of this article, pertains to the development of computer systems capable of performing tasks that typically require human intelligence, encompassing machine learning, natural language processing, and computer vision technologies².

Modern policing is characterized by its multifaceted role in maintaining societal order, ensuring public safety, and addressing emerging challenges in an increasingly complex world. Policing agencies worldwide confront an array of dynamic threats, ranging from conventional criminal activities to cybercrimes, terrorism, and transnational organized crime. Consequently, law enforcement entities seek innovative solutions to enhance their effectiveness and efficiency while upholding the principles of justice, fairness, and human rights.

The convergence of AI and modern policing is driven by the urgent need to optimize law enforcement efforts in an era marked by the proliferation of data and technological resources. It offers the potential to revolutionize policing by providing tools for predictive analysis, efficient resource allocation, and advanced investigative techniques. However, the integration

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² Russell, Stuart J. *Artificial intelligence a modern approach*. Pearson Education, Inc., 2010.

of AI also raises profound ethical, legal, and societal questions regarding issues such as data privacy, accountability, and the potential for algorithmic bias³.

This article seeks to explore the nuanced relationship between AI and modern policing, critically examining its implications, benefits, and challenges. By delving into the extant literature on both AI and policing, we aim to provide a comprehensive understanding of the dynamics shaping this intersection, while also identifying key gaps that warrant further scholarly investigation. Through this exploration, we endeavor to contribute to the ongoing discourse on the responsible integration of AI in law enforcement, ultimately advancing knowledge in this crucial domain.

B International context

The integration of artificial intelligence (AI) into modern policing is a global phenomenon that reflects the imperative for law enforcement agencies to adapt to an evolving technological landscape. In the international context, numerous nations have embarked on AI adoption initiatives within their law enforcement agencies. This trend is propelled by the recognition that AI technologies hold the potential to significantly enhance the efficiency and effectiveness of policing efforts⁴.

Countries such as the United States, the United Kingdom, China, and many others have made substantial investments in AI research and development for law enforcement purposes. For instance, predictive policing algorithms have been deployed to forecast crime patterns, enabling proactive deployment of resources to deter criminal activities⁵. In addition, facial recognition systems have been employed for suspect identification and in investigative processes⁶. These initiatives reflect the broader international acknowledgment of AI's capacity to revolutionize policing practices.

The urgency of integrating AI into modern policing is underscored by the rapidly evolving technological landscape. Criminal organizations and threat actors continually adapt to new technologies, leveraging digital tools, and encryption methods to obfuscate their activities⁷. In this context, law enforcement agencies must possess the necessary intelligence and tools to respond effectively.

AI-driven solutions offer the potential to process and analyze vast volumes of data, thereby providing law enforcement with actionable insights and predictive capabilities⁸. The importance of these capabilities cannot be overstated, particularly in combating organized crime networks that operate globally and employ sophisticated intelligence techniques⁹. The ability to process information rapidly and accurately is instrumental in keeping pace with evolving criminal methodologies.

³ Müller, Vincent C. "Ethics of Artificial Intelligence and Robotics." *Stanford Encyclopedia of Philosophy*, April 30, 2020. <https://plato.stanford.edu/entries/ethics-ai/>.nata

⁴ Thevenot, Jérôme, Miguel Bordallo Lopez, and Abdenour Hadid. 'A Survey on Computer Vision for Assistive Medical Diagnosis From Faces'. *IEEE Journal of Biomedical and Health Informatics* PP (10 2017): 1–1. <https://doi.org/10.1109/JBHI.2017.2754861>.

⁵ Mohler, George, M. Short, P. Brantingham, F. Schoenberg, and George Tita. 'Self-Exciting Point Process Modeling of Crime'. *Journal of the American Statistical Association* 106 (03 2011): 100–108. <https://doi.org/10.1198/jasa.2011.ap09546>.

⁶ Gebru, Timnit, Jamie Morgenstern, Briana Vecchione, Jennifer Wortman Vaughan, Hanna Wallach, Hal Daumé Iii, and Kate Crawford. 'Datasheets for Datasets'. *Commun. ACM* 64, no. 12 (November 2021): 86–92. <https://doi.org/10.1145/3458723>.

⁷ Walczak, Steven. 'Predicting Crime and Other Uses of Neural Networks in Police Decision Making'. *Frontiers in Psychology* 12 (2021). <https://doi.org/10.3389/fpsyg.2021.587943>.

⁸ Mohler et alii, 'Self-Exciting Point Process Modeling of Crime', 104.

⁹ van de Weijer, S. G. A., Leukfeldt, R., & Bernasco, W., 'Determinants of reporting cybercrime: A comparison between identity theft, consumer fraud, and hacking'. *European Journal of Criminology* (2019), 486–508. <https://doi.org/10.1177/1477370818773610>

However, the integration of AI in modern policing also brings forth ethical and legal considerations on a global scale. As Czczot et al. (2023) highlighted, issues of data privacy, transparency, and accountability remain paramount. The potential for algorithmic bias and the misuse of AI technologies for surveillance purposes raise concerns that necessitate international cooperation and regulatory frameworks¹⁰.

In summary, the international context underscores the significance of integrating AI in modern policing as a response to the rapid technological developments and the need to keep up with organized crime's evolving intelligence techniques. The global adoption of AI in law enforcement necessitates a careful balance between harnessing the benefits of AI and addressing the ethical and legal challenges it poses.

II. Literature review

A *Understanding artificial intelligence (AI)*

Artificial Intelligence (AI) is a multidisciplinary field of computer science that aims to develop systems capable of performing tasks that typically require human intelligence. These tasks encompass a wide range of activities, from pattern recognition and natural language understanding to decision-making and problem-solving. AI systems, often driven by machine learning algorithms, are designed to analyze data, learn from it, and make predictions or decisions based on that learning¹¹.

The evolution of AI is a testament to human ingenuity and technological progress. It can be divided into several phases, each marked by significant advancements:

Early foundations (1950s-1960s) - The inception of AI dates to the mid-20th century when computer scientists and mathematicians began developing the theoretical foundations of AI. Pioneers like Alan Turing (1950) laid the groundwork for AI by proposing the concept of a universal machine capable of simulating human intelligence.

The AI winter (1970s-1980s) - Following initial enthusiasm, AI faced a period of disillusionment known as the "AI winter." Progress was slower than anticipated, and early AI systems struggled to perform complex tasks. Funding and interest waned during this period¹².

Resurgence and Machine Learning (1990s-2000s) - The 1990s marked a resurgence of interest in AI, driven in part by advancements in machine learning and neural networks. Researchers developed algorithms capable of learning from data, leading to breakthroughs in areas such as natural language processing and computer vision¹³.

Deep learning and big data (2010s-Present) - The last decade has witnessed remarkable progress in AI, thanks to deep learning techniques and the availability of vast datasets. Deep learning models, particularly deep neural networks, have achieved human-level performance in various tasks, including image and speech recognition¹⁴.

The desired direction of AI research and development is marked by several key objectives:

General artificial intelligence (AGI): Researchers aspire to create systems that exhibit general intelligence, akin to human cognition, enabling machines to understand, reason, and learn across diverse domains¹⁵.

¹⁰ Rajaonah, B., Zio, E. 'Social Robotics and Synthetic Ethics: A Methodological Proposal for Research' *Int J of Soc Robotics* (2022). <https://doi.org/10.1007/s12369-022-00874-1>

¹¹ Russell *Artificial intelligence a modern approach*, 194.

¹² McCorduck, Pamela. "Machines Who Think: A Personal Inquiry into the History and Prospects of Artificial Intelligence." (1979).

¹³ LeCun, Yann, Yoshua Bengio, and Geoffrey Hinton. 'Deep learning.' *nature* 521, no. 7553 (2015): 436-444.

¹⁴ Goodfellow, Ian, Yoshua Bengio, and Aaron Courville. *Deep learning*. MIT press, 2016.

¹⁵ LeCun et alii, 'Deep learning.' 440.

Ethical and responsible AI: The ethical and responsible use of AI is of paramount importance. Ensuring that AI systems are transparent, unbiased, and aligned with societal values is a priority¹⁶.

Human-machine collaboration: Brynjolfsson & McAfee (2014) noticed that AI's future involves enhancing human capabilities through collaboration, where AI augments human decision-making and problem-solving.

B Modern policing: an overview

Policing serves as a fundamental institution in modern society, responsible for maintaining public safety, upholding the rule of law, and ensuring the well-being of citizens. Policing is not merely an instrument of law enforcement but also an embodiment of state authority, often considered the most visible representation of government at the community level¹⁷.

The central role of policing encompasses several critical functions:

Crime prevention and deterrence: - One of the primary roles of law enforcement is the prevention and deterrence of criminal activities. Police presence in communities is intended to dissuade potential offenders and contribute to the overall reduction of crime rates¹⁸.

Investigation and law enforcement: - Policing agencies are tasked with the investigation of crimes, apprehension of suspects, and enforcement of laws. This involves collecting evidence, conducting interviews, and ensuring that justice is served¹⁹.

Public safety and community engagement: - Maintaining public safety is a critical aspect of policing. Law enforcement officers are often the first responders to emergencies, including natural disasters and public health crises. Moreover, community engagement is vital for building trust between law enforcement agencies and the communities they serve²⁰.

Adapting to evolving challenges: - Modern law enforcement faces a dynamic and evolving set of challenges. Policing extends beyond traditional crime prevention and investigation to address contemporary issues such as cybercrime, terrorism, organized crime, and substance abuse disorders. The nature of these challenges often requires law enforcement to collaborate with other agencies and leverage advanced technologies²¹.

The challenges confronting modern law enforcement are multifaceted and demand innovative approaches:

Cybercrime and technological complexity: - The digital age has given rise to cybercrime, including identity theft, online fraud, and cyberattacks. Law enforcement agencies must adapt to the complexities of investigating crimes committed in the virtual realm²².

Terrorism and transnational crime: - The globalized nature of terrorism and transnational organized crime necessitates international cooperation and intelligence sharing among law

¹⁶ Floridi, Luciano, Josh Cowls, Monica Beltrametti, Raja Chatila, Patrice Chazerand, Virginia Dignum, Christoph Lütge, et al. 'AI4People—An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations'. *Minds and Machines* 28 (12 2018) 689-707, <https://doi.org/10.1007/s11023-018-9482-5>.

¹⁷ Skogan, W.G., 'Asymmetry in the impact of encounters with police', *Policing and Society*, (2006) vol. 16, no. 2, pp. 99-126. <https://doi.org/10.1080/10439460600662098>

¹⁸ Braga, Anthony A et al. "Hot spots policing of small geographic areas effects on crime." *Campbell systematic reviews* vol. 15,3 e1046. 8 Sep. 2019, doi:10.1002/cl2.1046

¹⁹ Archbold, Carol. *Policing: A Text/Reader*, 10 2012.

²⁰ Hancock, Cole and Tarallo, Mia, 'Building Trust Between Law Enforcement and the Communities They Serve Cole Hancock and Mia Tarallo' (2021). *Goal 16: Peace, Justice and Strong Institutions*. 1. <https://digitalcommons.coastal.edu/goal-16-peace-justice/1>

²¹ Gary Cordero, 'Rethinking police education in the United States' *Police Practice and Research* (2019), 20:3, 225-239, DOI: [10.1080/15614263.2019.1598066](https://doi.org/10.1080/15614263.2019.1598066)

²² 'Innovations in Measuring Community Perceptions Challenge', *National Institute of Justice*, accessed September 30, 2023, <https://nij.ojp.gov/funding/innovations-measuring-community-perceptions-challenge>.

enforcement agencies. Detecting and preventing these threats require advanced surveillance and analytical capabilities²³.

Ethical and legal challenges: - Modern law enforcement faces ethical dilemmas related to surveillance, privacy, and civil liberties. Balancing security imperatives with individual rights is an ongoing challenge²⁴.

Technological advancements and data management: - The proliferation of data, coupled with advances in AI and machine learning, presents opportunities and challenges. Brayne (2017) thought that law enforcement agencies must harness technology effectively while safeguarding against potential biases and ensuring data privacy.

C Bridging AI and modern policing

The integration of artificial intelligence (AI) into modern policing represents a pivotal convergence of technology and law enforcement practices. This section explores the intersection of AI and modern policing, drawing parallels between the desired direction of both fields and identifying existing literature gaps.

AI's integration into modern policing aligns with the overarching objectives of law enforcement agencies worldwide. The desired direction of modern policing emphasizes the following key aspects:

Intelligence-driven policing: - Modern policing increasingly leans towards intelligence-driven practices, which involve the proactive gathering, analysis, and application of data to inform decision-making²⁵. AI technologies provide law enforcement agencies with the capacity to process vast amounts of data, facilitating more informed and timely interventions²⁶.

Community engagement and trust building: - Community engagement and trust-building efforts are central to modern policing endeavors²⁷. AI systems, from Archbold (2012) perspective, can enhance community policing by enabling law enforcement agencies to allocate resources more efficiently, thus fostering improved community safety.

Adaptation to evolving challenges: - Modern policing faces a spectrum of evolving challenges, from cybercrime to terrorism²⁸. AI, with its ability to process and analyze diverse data sources, is an asset for addressing these challenges and enhancing law enforcement's adaptive capacity²⁹. Perspectives on AI adoption in policing vary considerably. Proponents emphasize the potential benefits of AI in enhancing crime prevention, investigative efficiency, and resource allocation. Conversely, skeptics raise concerns about ethical issues, including privacy infringements, algorithmic bias, and the need for human oversight³⁰.

The existing literature on AI integration in policing has its strengths but also notable gaps:

Ethical frameworks and guidelines: - While ethical concerns are frequently raised, the literature often falls short in providing comprehensive ethical frameworks and guidelines for AI use in

²³ Mathieu Deflem, 'Europol and the Policing of International Terrorism: Counter-Terrorism in a Global Perspective' *Justice Quarterly* (2006), 23:3, 336-359, DOI: [10.1080/07418820600869111](https://doi.org/10.1080/07418820600869111)

²⁴ Sara Ortiz, 'LWL #39 the Data Police: How AI and Big Data Are Reshaping Crime Prevention - Data-Pop Alliance' *Data*, May 12, 2023, <https://datapopalliance.org/lwl-39-the-data-detectives-how-ai-and-big-data-are-reshaping-criminal-justice/>.

²⁵ Leukfeldt and Bernasco 'Determinants of reporting cybercrime: A comparison between identity theft, consumer fraud, and hacking', 490.

²⁶ Brynjolfsson, E., & McAfee, A. 'The second machine age: Work, progress, and prosperity in a time of brilliant technologies' *W W Norton & Co* (2014).

²⁷ Hancock, 'Building Trust Between Law Enforcement and the Communities They Serve Cole Hancock and Mia Tarallo', 18.

²⁸ Cordner *Rethinking police education in the United States*, 228.

²⁹ Walczak 'Predicting Crime and Other Uses of Neural Networks in Police Decision Making', 5.

³⁰ Rajaonah and Zio. 'Social Robotics and Synthetic Ethics: A Methodological Proposal for Research', 10.

policing. Bridging this gap would offer practical guidance on the responsible development and deployment of AI systems³¹.

Bias mitigation strategies: - Addressing algorithmic bias in AI systems remains a pressing concern. The literature could benefit from more extensive exploration of effective strategies for mitigating bias, ensuring fairness, and promoting transparency in AI-driven policing³².

Human oversight and accountability: - Czczot et al. (2023) mentioned that balancing AI with human judgment and maintaining accountability in AI-driven policing is a complex challenge. Literature gaps persist in exploring mechanisms for human oversight and accountability in AI systems.

In summary, the integration of AI into modern policing aligns with key objectives of contemporary law enforcement. Perspectives on AI adoption are multifaceted, reflecting both enthusiasm for its potential benefits and concerns about ethical and privacy issues. Addressing existing literature gaps in ethical frameworks, bias mitigation, and human oversight is essential to bridge AI and modern policing effectively.

III. Integration of artificial intelligence in modern policing

A Predictive policing: Enhancing law enforcement effectiveness

Predictive policing, an application of artificial intelligence (AI), is revolutionizing law enforcement by improving the allocation of resources, enhancing crime prevention, and optimizing police operations. This section delves into the machine learning algorithms employed in predictive policing and explores the benefits and implications from the perspective of Knowledge Management Systems (KMS) and organizational performance.

Predictive policing relies on advanced machine learning algorithms to analyze historical crime data and identify patterns. Two prominent approaches in predictive policing are:

Hotspot analysis: - As Mohler et al. (2011) noted, hotspot analysis employs clustering algorithms to identify geographic areas with a high concentration of criminal activities. These algorithms analyze historical crime data to pinpoint crime hotspots, enabling law enforcement agencies to allocate resources proactively.

Predictive algorithms: - Predictive algorithms, such as those based on time-series analysis and regression models, forecast future criminal activities³³. They consider factors like historical crime trends, weather, and social events to predict when and where crimes are likely to occur. Predictive policing offers several advantages from the perspective of knowledge management systems (KMS) and organizational performance:

Resource optimization: - By identifying crime hotspots and predicting criminal activities, law enforcement agencies can optimize resource allocation, ensuring that officers are deployed to areas where they are most needed³⁴.

Crime prevention: - Predictive policing can help prevent crimes by enabling proactive interventions. Law enforcement agencies can take preemptive measures in identified hotspots, such as increasing patrols or implementing community engagement initiatives³⁵.

³¹ Floridi et al. 'AI4People—An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations', 703

³² Ortiz, 'LWL #39 the Data Police: How AI and Big Data Are Reshaping Crime Prevention - Data-Pop Alliance'

³³ Berk, Richard, Susan Sorenson, and Geoffrey Barnes. 'Forecasting Domestic Violence: A Machine Learning Approach to Help Inform Arraignment Decisions'. *Journal of Empirical Legal Studies* 13 (03 2016): 94–115. <https://doi.org/10.1111/jels.12098>.

³⁴ Mohler et alii, 'Self-Exciting Point Process Modeling of Crime', 105.

³⁵ Braga, 'Hot spots policing of small geographic areas effects on crime.', 2.

Counter-Corruption: - The strategic integration of AI in police forces holds the potential to bolster transparency, accountability, and efficiency, significantly contributing to the prevention of corruption within law enforcement agencies.³⁶

Data-driven decision-making: - The use of machine learning algorithms enhances data-driven decision-making within law enforcement organizations. KMS can store and retrieve vast amounts of data, enabling law enforcement agencies to base their actions on empirical evidence and analysis³⁷.

However, predictive policing also raises implications that organizations must consider:

Ethical and privacy concerns: - Predictive policing can lead to concerns regarding privacy, civil liberties, and potential biases in the data used to train algorithms³⁸. Striking a balance between crime prevention and individual rights is critical.

Transparency and accountability: - Organizations adopting predictive policing must ensure transparency and accountability in algorithmic decision-making³⁹. Understanding how predictions are generated and holding decision-makers accountable is essential.

Bias mitigation: - To avoid reinforcing existing biases in the criminal justice system, organizations must actively work to mitigate bias in predictive algorithms⁴⁰. Bias can disproportionately affect marginalized communities.

In summary, predictive policing, powered by machine learning algorithms, offers law enforcement agencies the potential to optimize resource allocation and prevent crimes. However, it also raises ethical concerns, necessitating transparency, accountability, and bias mitigation efforts to balance the benefits with the potential implications.

B AI in investigative processes: The role of facial recognition

The integration of artificial intelligence (AI) in investigative processes, particularly through facial recognition technologies, has revolutionized suspect identification and forensic investigations. This section explores the advancements in suspect identification and forensic investigations facilitated by AI, along with the ethical concerns and privacy implications from the perspective of Knowledge Management Systems (KMS) and organizational performance. Facial recognition technology powered by AI has significantly advanced suspect identification and forensic investigations:

Rapid suspect identification: - AI-driven facial recognition algorithms can quickly match images of individuals with existing databases of known suspects⁴¹. This speeds up identifying potential suspects and assists law enforcement agencies in solving complex criminal cases.

Forensic analysis: - As Scherer (2015) said, AI aids in forensic analysis by automating tasks such as fingerprint and DNA matching. Machine learning algorithms can process vast datasets, enhancing the accuracy and efficiency of forensic investigations.

³⁶ Alexandru Ioan, 'Promoting ethics and integrity, through transformational leadership and artificial intelligence, in the knowledge management systems used in fighting corruption at the level of traffic police structures' *Integritatea – Buletin documentar și de informare privind activitatea de combatere a corupției* (2023)

³⁷ Leukfeldt and Bernasco 'Determinants of reporting cybercrime: A comparison between identity theft, consumer fraud, and hacking', 497.

³⁸ Rajaonah and Zio. 'Social Robotics and Synthetic Ethics: A Methodological Proposal for Research', 15.

³⁹ Czczot, Grzegorz, Izabela Rojek, Dariusz Mikołajewski, and Belco Sangho. "AI in IIoT Management of Cybersecurity for Industry 4.0 and Industry 5.0 Purposes" *Electronics* 12, (2023) no. 18: 3800. <https://doi.org/10.3390/electronics12183800>

⁴⁰ Ortiz, 'LWL #39 the Data Police: How AI and Big Data Are Reshaping Crime Prevention - Data-Pop Alliance'

⁴¹ Gebru et alii 'Datasheets for Datasets', 87.

Enhanced surveillance: - AI-powered surveillance systems can track and identify individuals in real-time, contributing to situational awareness and public safety⁴². This capability is particularly valuable in crowded public spaces.

Despite the benefits, the use of facial recognition technology in investigative processes raises significant ethical concerns and privacy implications:

Privacy concerns: - Facial recognition systems can capture and analyze the faces of individuals in public spaces without their consent, potentially infringing on their privacy, as pointed out by Rajaonh and Zio (2022). This raises questions about the balance between security and personal liberties.

Accuracy and bias: - Buolamwini and Gebru (2018) highlighted, through their research, that ethical concerns are exacerbated by accuracy issues and potential biases in facial recognition algorithms. These biases can disproportionately affect certain demographic groups and lead to misidentifications.

Lack of transparency: - The lack of transparency in facial recognition systems and the algorithms that power them can hinder accountability and trust⁴³. Understanding how these systems operate is essential for ethical deployment.

Regulatory challenges: - Zuboff (2019) claimed that regulating facial recognition technology to ensure responsible use poses challenges. Developing clear guidelines and frameworks is essential to address these ethical and privacy concerns.

To conclude, AI-driven facial recognition technology has brought significant advancements to suspect identification and forensic investigations, enhancing law enforcement's capabilities. However, the ethical concerns and privacy implications must be carefully considered and addressed through transparent and accountable practices to ensure responsible use.

IV. Benefits, challenges, and mitigations

The integration of artificial intelligence (AI) into modern policing is a topic of significant scholarly interest. As Mohler et al. (2011) noted, AI promises substantial benefits for law enforcement. AI-driven predictive policing can enhance public safety by allowing agencies to proactively allocate resources to potential crime hotspots. This approach, grounded in self-exciting point process modeling, facilitates the identification of areas with a higher likelihood of criminal activity, ultimately leading to more effective crime prevention.

Nevertheless, this technological shift raises important ethical and practical concerns. Scholars like Ortiz (2023) have emphasized the challenges associated with AI in law enforcement, particularly regarding data privacy and human oversight. AI systems, fueled by vast datasets, raise questions about individual privacy and data protection. Ensuring that these systems comply with relevant regulations is essential to safeguard individuals' rights, as highlighted by Rajaonh and Zio (2022).

Moreover, ethical dilemmas loom large in the adoption of AI. Floridi et al. (2018) have called for the development of comprehensive ethical frameworks and guidelines to govern AI use in policing. These frameworks would address concerns related to fairness, transparency, and accountability in AI-driven decision-making, aligning with the broader debate on responsible AI use.

Bias and fairness issues are also central to the discussion, as pointed out by Buolamwini and Gebru (2018). AI systems can perpetuate biases present in historical data, potentially leading

⁴² Rizi, Mohammad Hosein Panahi, and Seyed Amin Hosseini Seno. "A systematic review of technologies and solutions to improve security and privacy protection of citizens in the smart city." *Internet of Things* 20 (2022): 100584.

⁴³ Czczot, et alii. 2023. 'AI in IIoT Management of Cybersecurity for Industry 4.0 and Industry 5.0 Purposes', 10.

to discriminatory outcomes. Addressing and mitigating algorithmic bias through improved data collection practices and algorithmic design is a critical step, as suggested by Ortiz (2023). In navigating the complex landscape of AI integration in modern policing, it is essential to balance the benefits with these challenges responsibly and ethically. As Czczot et al. (2023) have argued, maintaining human oversight and accountability mechanisms is vital to avoid overreliance on automated decisions, ensuring that AI complements, rather than replaces, human judgment in law enforcement.

V. Conclusion

In the rapidly evolving landscape of modern policing, the integration of artificial intelligence (AI) stands as a compelling and transformative development. As we've explored through the lens of various scholars, AI holds the potential to revolutionize law enforcement by enhancing public safety, optimizing operational efficiency, and aiding in crime prevention. The works of Mohler et al. (2011), Berk et al. (2016), and Braga et al. (2019) vividly illustrate how predictive policing, driven by AI, can empower law enforcement agencies to proactively address crime hotspots and allocate resources effectively.

However, this technological leap comes with a set of complex challenges, as highlighted by Ortiz (2023), Czczot et al. (2023), and Buolamwini and Gebru (2018). Ethical concerns surrounding fairness, accountability, and transparency in AI-driven decision-making demand comprehensive frameworks and guidelines⁴⁴. Bias and fairness issues, intertwined with AI, require diligent efforts to address and mitigate algorithmic bias, as emphasized by Buolamwini and Gebru (2018).

Moreover, data privacy concerns underscore the importance of stringent measures to protect individuals' rights, an issue underscored by Rajaonh and Zio (2022) and Zuboff (2019). The balance between AI and human judgment, a central theme articulated by Ortiz (2023), is pivotal in ensuring that AI complements, rather than supplants, the decision-making process in law enforcement.

As we recapitulate AI's integration into modern policing, it is evident that the journey is fraught with both promise and challenges. Responsible AI implementation, as advocated by Scherer (2015), is the way forward. Ethical frameworks, bias mitigation strategies, data privacy enhancements, and robust accountability mechanisms should be woven into the fabric of AI adoption.

In these final thoughts, we contemplate the future direction of AI in policing. The path ahead demands a delicate balance between harnessing AI's potential for enhanced law enforcement and safeguarding individual rights and societal values. As the realm of AI and modern policing continues to evolve, interdisciplinary collaboration among policymakers, technologists, legal scholars, and law enforcement agencies is imperative.

In conclusion, the fusion of AI with modern policing is not merely a technological advancement but a societal transformation. It is a call to embrace innovation while upholding ethical and legal principles, and it beckons us to explore new frontiers in the ever-evolving landscape of law enforcement.

⁴⁴ Floridi et al. 'AI4People—An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations', 703

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Crime Scene Investigation at Radioactive Contaminated Sites

*Izabella Kakuja*¹

Environmental safety, as an integral part of security, is negatively affected by the uncontrolled use of radioactive/nuclear materials and by criminal acts committed with/on such materials. Working at the scene of such crimes requires a high level of expertise and extreme attention. The presence of radioactive materials at crime scenes is no longer a curiosity². These may include explosive devices capable of dispersing radioactive/nuclear materials or materials used for poisoning/radiation. Their accurate identification, collection and professional examination require specialised expertise and a high level of training. If the radioactive/nuclear material is not identified by specialist personnel during the on-site activity, bystanders may suffer health hazards and/or contaminate large areas and objects, thus adding to the underlying problem. Recognition alone is not enough, you need to know how to create and maintain a safe working environment. However, it must be recognised that this is not always feasible, i.e. crime scene investigation work processes and, where appropriate, forensic investigations must be carried out in an environment contaminated with radioactive material. The first step is to identify the hazards on site and, in the light of this, to select the appropriate personal protective equipment (PPE), as the presence of radioactive/nuclear materials on the site poses a particular safety risk. The focus should then shift to the professional and lawful collection of criminal evidence, including radiological material, conventional evidence contaminated with radiological material and conventional uncontaminated evidence. In my paper, I will describe this process from detection, through preparation, to the completion of the on-site inspection.

Keywords: contaminated crime scene, evidence, crime scene investigation.

I. Introduction

In order to demonstrate the procedure, it is necessary to understand the concept. In general, the concept created by the UN International Atomic Energy Agency is internationally accepted. "Radiological Crime Scene Management (RCSM) is the process used to ensure safe, secure, effective, and efficient operations at a scene where nuclear or other radioactive materials are known to be or are suspected of being present."³

Today, it is not so unusual to find radiological material at the scene of a crime. However, to deal with this type of site requires special expertise and special measuring instruments. Both are needed in combination. As I mentioned earlier, without special expertise, detection can fail and those on the scene and in the surrounding area can suffer health damage and/or contaminate large areas and objects. The question arises as to whether it is sufficient for the forensic scientists to carry out the on-site investigation with radiological advice. The answer is no. This is partly because conventional crime scene investigators are not trained to detect radiological materials. Partly because they do not have the equipment to detect radiation. Without detection, radiation is undetectable because it has no smell, no taste, no visibility, no special appearance.

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²Izabella, Kakuja: Data extraction during CBRN Crime Scene Investigation, *Safety and Security Sciences Review*, Vol 6, No 1, 2024. pp 79

³ IAEA Nuclear Security Series No. 22–G, *Radiological Crime Scene Management, Implementing Guide*, International Atomic Energy Agency Vienna, 2014, pp.1

In other words, there is nothing to conclude that we are dealing with such a substance. In addition, the danger is that while the effects of biological or chemical substances are immediate, the effects of radioactive/nuclear substances can take several years, depending on the level of exposure. However, the mere recognition of the presence of radioactive materials at the scene is not enough. It requires accurate identification, collection, professional transport, handling, testing, all of which require special expertise. At this stage we are only talking about the handling of radioactive material, which does not include traditional crime scene management. At this point, we have to distinguish between crime scenes: 1. the radioactive material is the crime scene itself; 2. the conventional crime scene is contaminated with radioactive material; 3. the crime scene is not contaminated at all. Depending on which category they fall into, special rules apply to them in addition to the general rules. It is therefore necessary to take into account and manage these new risks and to consider whether new working methods should be developed in crime scene investigation.

II. Preliminary phase

A Recognition

We need to use the term ‘Radiological Crime Scene Management (RCSM)’ which is "the process used to ensure safe, secure, effective and efficient operations at a site where the presence of nuclear or other radioactive materials is known or suspected."⁴

It is important to note that not every incident involving radioactive material is a crime, however there are cases when the incident is classified as a crime later, after the event. That is why it is advisable to collect the evidence in such locations in accordance with the rules of forensic science and criminal procedural law. The presence of special devices, lead cases, and containers indicate that there may be radioactive/nuclear material in the area. It is important that even without these signs there may be radioactive/nuclear material on the scene, and the investigators can be informed about this in advance based on covert intelligence reports.

We have to make a difference between the presence and the hypothetical (suspected) presence of radioactive materials. Let us take a look at the picture below to see what signs of radiation we can find.

Picture 1: Presence or suspected presence of radioactive materials⁵



⁴ IAEA Nuclear Security Series No. 22–G, Radiological Crime Scene Management, Implementing Guide, International Atomic Energy Agency Vienna, 2014, pp.1,

⁵ Photo credit by the author

As we can see in the picture above, there are numerous objects whose presence indicate the presence of radiant material. See the images below for details.

Pictures 2-7: Suspicious equipments and objects⁶



Without wishing to be exhaustive, the presence of these objects at the site clearly indicates that they were working with radioactive material.

III. Common and different elements between traditional CSI and radiological CSI

A Common elements

Preserving public health & safety enjoys priority over the needs of any criminal investigation. The next element is to control the persons who can enter and exit the site (to document the entries and exits by name, date, time and purpose). This is followed by the development of a common threat risk assessment and site security plan prior to the entry for evidence collection. Documenting the scene is possible by taking photographs or video recordings, making drawings or sketches. It is necessary to establish and maintain “chain-of-custody” for each item of evidence that is collected.

B Different elements

Radiological crime scenes differ from the conventional standards prescribing the **requirements to protect personnel at the scene from radiation hazards**. There are specific issues following principles of **Radiation Protection** which must be considered and planned for when managing the crime scene, including:

- **TIME** spent in the hazard control area;
- **DISTANCE** between the evidence contaminated with radionuclides and the individual collecting the evidence;
- Radiation **SHIELDING** between the evidence and the individual collecting the evidence;
- Radionuclide **CONTAMINATION** control;
- Individual radiation **EXPOSURE** control.⁷

⁶ Photo credit by the author

⁷IAEA Nuclear Security Series No. 22–G, Radiological Crime Scene Management, Implementing Guide, International Atomic Energy Agency Vienna, 2014, pp.1,

C Conventional Crime Scene Investigation

The following three elements are completely different during the conventional crime scene investigation:

- **TIME:** crime scene investigators have unlimited time at their disposal
- **DISTANCE:** crime scene investigators can get as close to the scene and its elements as they want to, in order to collect evidence.
- **SHIELDING:** crime scene investigators do not or hardly need to use any radiation shading or protection at crime scenes.

D Radiological Crime Scene Investigation

The three elements mentioned above involve the following features during radiological crime scene investigation:

- **TIME:** crime scene investigators must spend as little time as possible on site to avoid collecting a large dose of radiation. The time is limited. This anticipates the need for surrogate staff to be ready on the scene because of the tight time window. So we need more human resources than a typical site and all staff deployed to a radiology site need to be trained.
- **DISTANCE:** crime scene workers should stay as far away from contaminated or suspected contaminated areas as possible. The distance has to be dealt with. For example, using long tweezers or manipulators, using special tracing devices such as Forescope.

Picture 8: Forescope in use⁸



- **SHIELDING:** scene workers must wear shielding because of to radioactivity.

Both the potential for contamination and the dose received must be taken into account in every case. The presence of a radioactive/nuclear element on the scene makes the procedural action extremely difficult, since it is not enough to comply with legislation, professional rules and ISO standards, but all this has to be done under time pressure, in heavy protective clothing, with extra safety rules and constant communication.⁹ The collection and examination of evidence in a timely manner will greatly assist in the speedy establishment of investigative hypotheses and

⁸ Photo credit by Dean Calma UN IAEA

⁹Izabella, Kakuja Data extraction during CBRN crime scene investigation, Safety and Security Sciences Review, Vol 6, No 1, 2024. pp 81

the prevention of further possible crimes, as well as the identification, tracing and prosecution of the persons involved or suspected.

This is done by accurately documenting the conditions found at the scene of the crime and collecting all relevant physical evidence in such a way that it can be used in court. However, in order to gather as much evidence as possible, we need a specialist staff and, as I mentioned earlier, the protection of human life is a priority, including the life and health of the crime scene investigators. So it becomes a task to protect them from the toxic substances at the scene and to protect the scene from contamination by the staff. Below is a description of the minimum protective outfit they should wear.

IV. Personal Protective Equipment (PPE)

In the case of radioactive materials, the use of individual, special protective equipment is necessary: Tyvek clothing sealed with tape at the wrist, taped down, arm-hand-shoe protectors, gloves, breathing mask, if necessary, lead apron, electronic personal dosimeter (EPD). Such clothing is quite uncomfortable, restricts movement, vision, it fundamentally affects and makes hearing, smelling and communication difficult. In other words, it is necessary to train the crime scene technicians how to use them. It is also important to continuously monitor those working on site at the command post.

When leaving the site, people and equipment must be decontaminated (freed from radioactive substances), the removal of protective clothing has special rules. In the case of a radiological site, both scene investigators and other personnel must use a "Hazard Control Area" and decontamination stations for proper clearance (decontamination) of personnel, instruments, and evidences.

V. Key points for radiological crime scene investigation

Handling a radiological crime scene requires special equipment, expertise and skilled procedures on both sides: radiological and traditional. Radioactive/nuclear materials can be evidence (not just hazardous materials!) This requires two basic things, one is the chain of custody, the other is the nuclear forensics must start at the scene (initial identification and categorization of the material). The nuclear forensic analytical laboratory must obtain all possible information on the material collected (type and quantity of material, isotopes identified, dose, etc.).

To summarise, one of the most important parts of radiological crime scene management is the preparation, because this is a complex and difficult process. In this presentation I will not go into this because of the short time available. After the preparations, a primary survey is essential. From the radiological point of view, this includes risk assessment, planning of work procedures, zoning, measurement of the radiological background of the site and measurement of surface contamination (detection of possible spillages, contamination). It also includes the identification, marking and disposal of hot spots (e.g. shielding of radiological material, etc.). Once the hot spots have been detected, their identification is necessary, i.e. isotopic identification of the radiological material present in the hot spots using measuring instruments (measurements are also in accordance with NATO STANAG AEP 66).¹⁰

¹⁰Izabella Kakujka: Unique Hungarian method in radiological crime scene management. Military Technology Volume LVI – 2022/5,

Picture 9: Marking¹¹



However, traditional crime scene investigation must not be forgotten, i.e. visual footprints must be searched for, evidence that is prone to degradation must be protected, a path of traffic must be marked out and everything must be video recorded.

Picture 8: Measuring with telepole¹²



¹¹Photo credit by Dean Calma UN IAEA

¹² Photo credit by the Centre for Energy Research

Picture 9: First survey¹³



Picture 10: Isotope identification¹⁴



This is followed by the professional collection of the detected materials using tweezers and manipulators. During collection, maximum compliance with safety regulations and ABV¹⁵ protocol must be ensured, and care must be taken to avoid contamination (cross-contamination). This is important for two reasons. Firstly, the contamination should not be taken off-site, i.e. no

¹³ Photo credit by the Centre for Energy Research

¹⁴ Photo credit by the Centre for Energy Research

¹⁵Based on the 2009 Standard Guidelines of the Chemical Defence Section of the MH Armed Forces Permanent Working Committee, the abbreviation ABV is used in MH documents.

new contaminated area should be created. Secondly, do not contaminate yourself or the crime scene. In other words, always have a "clean" technician on site to provide the crime scene with a crime scene bag and/or change gloves between each sample collection. Avoiding cross-contamination is also important for the integration of evidences. Video and photographic recordings of the crime scene are taken continuously, both before and during the procedure, including the activities of the crime scene investigators. The procedure itself must also comply with Parts 1 and 2 of the EN ISO 21043 series of standards^{16,17}.

However, traditional crime scene investigation must not be forgotten, i.e. visual footprints must be searched for, evidence that is prone to degradation must be protected, a traffic path must be marked and everything must be video recorded. All material exiting the scene, including collected evidence and any equipment used for searching or recording, as well as any instruments or equipment used to detect the material, must be re-measured in the clear zone and if it is necessary.

Picture11: Contamination check¹⁸



They must also be decontaminated (cleaned) there. After the radioactive/nuclear material has been collected, repeat measurements should be taken on the field to see if there is any contamination left behind or not. If not, the scene can be handed over to the crime scene investigators and the level of personal protective equipment can be reduced. In the event that contamination remains at the site, then site radiological crime scene management should continue or expert-led site work should begin. The first step is to prepare a "TRIAGE" of the evidences to be collected. Here, the priority is always to collect first those that can be easily

¹⁶MSZ EN ISO 21043 Forensic sciences. Part 1: Terminology and definitions Part 2: Detection, documentation, collection, transport and storage of crime scenes

¹⁷Izabella, Kakuja Data extraction during CBRN crime scene investigation, Safety and Security Sciences Review, Vol 6, No 1, 2024. pp 82

¹⁸ Photo credit by Dean Calma UN IAEA

destroyed and directly point to the perpetrator.¹⁹ However, with today's technological advances, we cannot ignore the use of digital data as evidence.

VI. Conclusions

Radiological crime scene management has much in common with traditional crime scene investigation, but there are some important differences, as we have seen earlier. Radiological crime scene management helps in the handling of nuclear security incidents and also helps in catching and linking offenders to the scene. It can also help to link sites to other sites by analysing materials. However, it is not sufficient to deploy police crime scene investigators at such a scene because they lack experience in detecting, measuring and collecting radioactive materials and usually lack adequate radiological knowledge. At the same time, if only radiological experts are present at the site, the integrity of the scene and the chain of custody is damaged, i.e. it is not sustainable as evidence in court. If the traditional recording of evidences, digital data extraction and characterisation of radioactive/nuclear material can be done at the same time, possibly even on the scene, and the data obtained can be transmitted immediately and securely, I believe that the law enforcement potential will be significantly increased. This in the case of an attack of terrorism gives the authorities an extraordinary advantage.²⁰ If we can send video recordings in real time to the command post and send the photos via a data link as soon as the photo is taken, then through coordinated action, partner agencies, other experts, law enforcement agencies - even in other countries - can receive a live image via an encrypted channel in real time, thus assisting the team working in the investigation zone or sending the information to the appropriate agency.²¹ The risks presented by CBRN threats are a permanent feature of today's world, and it is therefore justified to maintain and develop these detection capabilities.²² So is the education and training of specialist staff. However, there is a gap in this area, as it is not included in the training of crime technicians. In my view, this must be corrected. Hungarian practical experience over the past 5 years shows that a mixed team is much more effective. In other words, the traditional police forensic team, complemented by radiology experts and working together on the ground, can work with very high efficiency. I would like to emphasise that by joint working I do not mean that the police forensic team works alone in the field on the basis of instructions from the radiology expert. This will not increase the efficiency of solving radiological problems that arise during the forensic investigation and the effectiveness of radiological issues and activities. An emergency cannot be managed well. In my opinion, in order to implement an effective methodology, it is also important to coordinate our activities, because of the technician on the scene will not be the first to arrive. However, this also raises the issue of focusing on first responders and coordination with other organisations.

¹⁹Izabella, Kakuja Data extraction during CBRN crime scene investigation, Safety and Security Sciences Review, Vol 6, No 1, 2024. pp 82

²⁰Izabella, Kakuja Data extraction during CBRN crime scene investigation, Safety and Security Sciences Review, Vol 6, No 1, 2024. pp 83

²¹Izabella Kakuja Unique Hungarian method in radiological crime scene management, Military Technology Volume LVI – 2022/5,

²²László Juhász: Nuclear, biological and chemical (ABV) detection <https://docplayer.hu/24496254-Az-atom-biologiai-es-vegyszeri-abv-felderites.html> downloaded: 10.09.2023.

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Operation ‘Swimming Salt’¹ – One of the most serious organised crime investigations ever on the Danube

*Ádám Kalmár*²

On the 11th of October in 2021, about 2,8 million boxes (i.e. 57 million pieces) of untaxed cigarettes were seized by the National Tax and Customs Administration of Hungary (NTCA) from a Ukrainian barge in the town of Paks and on the next day in a warehouse in Pest county. The confiscated cargo was hidden in rock salt sling-bags. Four perpetrators have been arrested during this HUF 5,5 billion value case, which is an unprecedented detection in the history of Hungarian Customs related to cigarette smuggling.

The organized group of Hungarian citizens of Ukrainian origin caused almost HUF 4 billion in damage to the budget through the fraud of VAT and excise duties. During the operation three persons were caught red-handed and the fourth suspect was captured by Customs Officers during the escape. All of them were detained and the court ordered their arrest. The NTCA was investigating suspected budget fraud and money laundering. The perpetrators could face up to 20 years in prison.

The international aspects of the operation were coordinated by the Europol under international criminal and judicial cooperation. Thanks to great analytical work done by investigators of the Customs, a network of companies and invoicing chain was able to establish, which, through international cooperation, led to Polish, Czech, Romanian and Ukrainian companies. It has been revealed, that they not for the first time, benefited from this method. But was the unravelling of the case a complete success, or were there mistakes that could weaken the security of the Danube River? In the light of this case study, what are the possibilities for further developing international cooperation on the Danube?

Keywords: cigarette smuggling, case study, Danube, customs, international cooperation.

I. Introduction

The variety of new security challenges emerging today is unprecedented. While tackling these challenges is primarily a national competence, the international connectivity of the Danube creates a common vulnerability across the countries of the region, and the cross-border nature of law enforcement is undeniable. The European Union has voted in favour of early detection, analysis, awareness raising, increasing resilience, prevention, crisis management and consequence management, and these are the areas on which the common policy should focus in the future, since Hungary, as a full member of the Schengen Convention, is one of the first - and perhaps the most important - control and risk management spot for threats coming from outside the Danube.³

The border checks and risk management carried out by the Hungarian Police and the National Tax and Customs Administration (NTCA) at the southern Danube border of the Schengen Area

¹ The author would like to thank the South-Transdanubian Investigations Department of National Tax and Customs Authority on providing authorization (Nr. 62002-1/620/2022.Ált.) for using data of the case Nr. 62002/2017/2021. bü. and especially Nagy Erzsébet, head of Department and dr. Mezei Ágnes analyst for sharing their professional knowledge.

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³ European Commission: EU strategy for the security union, online: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596452256370&uri=CELEX:52020DC0605> (downloaded: 2023.09.22)

is of European importance. It is a fact that Croatia has been a full member of the Schengen Convention since 1st of January 2023 for land and river borders. However, the crime case and the conclusions drawn from it analysed below, occurred before that date and Hungary remained an external border of the EU with Serbia on the Danube, and its importance for Schengen and customs control is obvious. Vessels entering at the international border port of Mohács may, in principle, continue their journey northwards into the European Union or even to Rotterdam using the Danube-Rhine-Main Canal without police and customs controls. Border checks is carried out directly by the Border Police and Water Police and by the local branch of the NTCA, in close cooperation with the disaster management, public health, food chain safety and veterinary services, as well as shipping agencies. Thus Mohács is a permanent Schengen border port on the external border, next to Vukovar, where all vessels entering or leaving Serbia have to stop for border checks, which can only be done by Slovak, Austrian or German authorities after the temporary reintroduction of border controls.

Those vessels crossing the Danube from Croatian waters⁴ to Mohács may be subject to in-depth controls on the basis of a risk analysis. For these reasons, it is important to identify and analyse the risks inherent in border control in a timely manner and, on the basis of the results, to identify possible ways of risk management.⁵ One of the most important issues is to improve the flow of information between the law enforcement agencies of the Danube States. In 2011, Europol assessed the Danube as a high risk area for smuggling in human beings, irregular migration, smuggling of goods, drugs and arms trafficking.⁶ Between 2013 and 2015, the DARIF project⁷, coordinated by Hungary, involved ten Danube countries (Germany, Austria, Slovakia, Croatia, Serbia, Romania, Bulgaria, Moldova, Ukraine and Hungary) and several international and European agencies (such as Europol, Interpol and Frontex). On the project's expert forums they identified that the risks linked to the Danube infrastructure, navigation and the river itself are mainly linked to illegal migration, smuggling of goods, organised crime against property and environmental damage linked to aquatic habitats.⁸ The greatest risk on Danube vessels is the smuggling of goods (mainly tobacco or alcohol) and prohibited items (such as drugs or possibly weapons), including cigarettes, which can be smuggled generally on vessels sailing from Ukraine to Western European countries. Cigarette smuggling generates a large income for organised crime groups, as it can be hidden in or under bulk cargo in the barges of Danube cargo ships, making it difficult to detect. Most of the threats

⁴ There has been no precise demarcation of the border between Serbia and Croatia, as countries that seceded from the former Yugoslavia, on the basis of any legal act, and the Danube border between the two countries is still disputed. The Croatian position is that the border should not be along the current course of the Danube, because on the left bank of the river there is a ten times larger area of land that belonged to their country according to the 19th century cadastral register, which was made during the Austro-Hungarian Empire. In the Danube border dispute between the two countries, until an agreement is reached - as long as Croatia is a Schengen member state and Serbia is not a member of the EU - Hungary can follow the border police practice that, before entry, a vessel calling at any port on the left bank of the Danube comes from Serbia (i.e. from the Schengen external border), while a vessel docked on the right bank comes from Croatia (i.e. via an internal border). For more information see: Darko, M. Markovic: International legal aspects of delimitation between Croatia and Serbia on the Danube River. *Pravo I Politika*, Godina XI, 1-2/2018.42-52.

⁵ Ritecz, György: A migráció kockázatai. In Gaál Gyula – Hautzinger Zoltán: *XIV. Pécsi Határőr Tudományos Közlemények*. Pécs, MHTT Határőr Szakosztály Pécsi Szakcsoport, 2013. 255–264.

⁶ Berta, Krisztina: Előszó. In Herczeg Mónika: *A Dunai Folyami Fórum Strukturájának létrehozása, DARIF*. Budapest, Magyarország Belügyminisztériuma, (2015) 6.

⁷ „Setting up the Structure of a Danube River Forum” – DARIF. HOME/2012/ISEC/FP/C2/4000003980. Online: <https://bmprojektek.kormany.hu/a-dunai-folyami-forum-strukturajanak-letrehozasa-darif> (downloaded: 2023.09.22)

⁸ Gábor, Balog: Criminal and Risk Analyses Expert Group. In Herczeg Mónika: *A Dunai Folyami Fórum Strukturájának létrehozása, DARIF*. Budapest, Magyarország Belügyminisztériuma, 2015 (2015), 22-26. Online: <http://bmprojektek.kormany.hu/bunmegelozes-es-a-bunozes-elleni-kuzdelem-program2> (downloaded: 2023.09.22)

are due to the lack of searching means possibilities. To prevent them, however, border control must become increasingly intelligence- and risk analysis-based and the timely exchange of information between the countries of the Danube Region must be enhanced too.⁹ Boosted police cooperation could prevent some serious crimes, and international police-customs cooperation shall be a prerequisite for effective law enforcement measures.¹⁰ The European Union has also voted in favour of early detection, analysis, awareness-raising, resilience-building, prevention, crisis management and consequence management, which should be the focus of common policy in the period ahead.¹¹ Based on interviews made with officials in the Hungarian Ministry of Interior who are involved in the implementation of the EU Strategy for the Danube Region, one of the biggest problems identified is the difficulty in establishing the real scale of the threat posed by organised crime in Danube shipping, so Hungary's law enforcement agencies facing latency on identifying the extent of smuggling by ships, which resulted low political priority to this area, thus less resources can be allocated to it. Increased police cooperation (including joint risk analysis, training and exchange of experience) is one of the key measures to enhance Danube security, as timely exchange of information would allow quicker apprehension of perpetrators of serious crimes and regular exchange of statistical data between Member States would also reduce latency. Although Hungary has established the legal framework for the Danube Law Enforcement Coordination Centre with Croatia¹² - under the aegis of which this all could be achieved - it is not yet fully operational, as the other Danube States have not joined the international convention on which it is based for political and financial reasons.¹³

The author's questionnaire research also confirms the thoughts above. He found that 88% of the Danube law enforcement officials consider that cargo transport is riskier than passenger transport and that the most smuggled goods on board are cigarettes and tobacco products, followed by alcohol, then oil and then drugs. Besides that, 64% of respondents agreed that there is a high latency rate for cigarette smuggling detected on Danube vessels, with 53% of them considering it to be a widespread phenomenon in their country. The representatives of the Danube States' law enforcement agencies also agree that the most urgent issue is to improve international cooperation. According to 77% of the experts, the lack of a law enforcement coordination centre with involvement of all the Danube States clearly causes security deficit and 74% of them felt that better use of existing customs-police cooperation points (PCCCs) (usually located at land border crossing points) is not enough, but instead setting up specialised inland waterway information networks would rather be a future solution.¹⁴

⁹ Kalmár, Ádám: Kockázatok a dunai vízi határforgalom-ellenőrzésben. *Magyar Rendészet* 22 : 1 (2022) 121-138.

¹⁰ Kalmár, Ádám (2022): [A dunai határellenőrzés bűnüldözési funkciói rendkívüli időszakban](#). In: Gaál, Gyula; Hautzinger, Zoltán (szerk.) *Rendészet a rendkívüli helyzetekben : húsz éves a Szent László napi konferencia*. Pécs, Magyarország : Magyar Hadtudományi Társaság Határőr Szakosztály Pécsi Szakcsoport (2021) 293-301.

¹¹ European Commission: EU strategy for the security union, online: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596452256370&uri=CELEX:52020DC0605> (downloaded: 2023.09.22)

¹² Agreement between the Government of Hungary and the Government of the Republic of Croatia on the operation of the Danube Law Enforcement Coordination Centre. Done at Mátraháza, on 11 October 2012. Online: <https://njt.hu/jogszabaly/2012-171-00-00> (downloaded: 2023.09.22)

¹³ Kalmár, Ádám: Rendészeti együttműködés a Duna Stratégia égisze alatt. *Belügyi Szemle*, 70(12), (2022) 2591-2610. <https://doi.org/10.38146/BSZ.2022.12.3>

¹⁴ Kalmár, Ádám: Law Enforcement Officials' Opinion on the Security Situation and Cooperation on the Danube *Magyar Rendészet* 23 : 1 (2023) 79-83.

II. Method

In the following, a case study from a real-life customs investigation, based on Warner's categorisation,¹⁵ is analysed using fictitious pseudonyms instead of real names of ships and persons. The writing of the case study, which demonstrates the presence of cross-border organised crime in the Danube and the problems described in the introduction, is the result of empirical research.

The selected organisation is the Hungarian National Tax and Customs Administration (NTCA) and the selected offence is related to the smuggling of cigarettes into the European Union by waterway.

I confirmed the investigation of the case by means of consultations, prior to which I collected the necessary background information with the support of the investigators of the Criminal Investigation Directorate of the South-Transdanubian Regional Directorate of NTCA. In answering the questions posed in the case study¹⁶, I also used the material of the international conference EUAF 2022, 101101789-2022-HU-CORICO, „Conference on Danube River Customs Control to fight against cigarette smuggling”, held in Mohács, 18-21 September 2023. I have followed the rules of case study analysis in describing the case and the data of the investigation. A case study, according to Yin's classification, is also of the exploratory/investigative type¹⁷, as it defines both questions and hypotheses related to the case.

III. The case study – Preliminary information and research questions

The case of outstanding detection under analysis was reported in the press in November 2021, as follows.

*"The NTCA seized a total of 2.8 million cartons, or 57 million pieces of untaxed cigarettes from a Ukrainian cargo ship and in a warehouse in Pest County. Four people were arrested after the almost 5.5 billion haul, unprecedented in Hungary. On paper, the smugglers' boat was carrying bale salt on the Danube, but checks revealed that the bags, each weighing 1,300 kilos, contained more than 2.3 million packets of cigarettes without excise stamps. After analysing the information on the spot, NTCA colleagues quickly reached a site in Pest County, where they found almost half a million packets of contraband cigarettes in similar circumstances, disguised as salt. The organised group of Hungarian citizens of Ukrainian origin caused almost 4 billion HUF in damages to the budget with the VAT and excise duties they had stolen."*¹⁸

As a researcher working on improving Danube law enforcement cooperation, the case immediately caught my interest, as it confirmed the presence of organised crime in Danube shipping and the previous concerns of representatives of the domestic law enforcement agencies in a very significant case. The volume of smuggled cigarettes seized in the case reached or exceeded the volume of all other cigarette smuggling detected at the border in Hungary in the years prior to 2021 - and since then. Based on publicly available data, the NTCA seized 64.3

¹⁵ Warner, Charles, "How to write a case study", 1998.

¹⁶ Közigazgatási Vezetői Akadémia: Esettanulmány alapú módszertan. 13-17 online: <https://nkerepo.unike.hu/xmlui/bitstream/handle/123456789/100182/586.pdf?sequence=1&isAllowed=y> (downloaded: 2022.08.04.)

¹⁷ Yin, K. Robert (1993) „Applications of case study research”, Newbury Park, CA: Sage Publishing, p. 5

¹⁸ Novekedes.hu: *A tapasztalt nyomozók is megdöbbentek a csempészégi mennyiségén.* Online: <https://novekedes.hu/nav-infotar/a-tapasztalt-nyomozok-is-megdobbentek-a-csempeszegi-mennyisegen-video-a-cikkben> (downloaded: 2023.09.22)

million cigarettes at all borders and throughout Hungary in 2019, 25-25 million cigarettes in 2020 and 2022, and 24.9 million cigarettes in the first half of 2023.¹⁹

In addition, its detection required international cooperation, so I was curious to know what difficulties were encountered in its implementation, whether there were any pitfalls that could highlight the problems of law enforcement cooperation that have been raised in the past.

Specifically, I have asked the following questions.

1. How was international cooperation in the investigation coordinated by which EU agency?
2. When, to whom, what information was sent and through which channel?
3. Was there a failure in the flow of law enforcement or criminal information exchange that had caused a negative impact on the incident or the investigation?
4. Was the speed and efficiency of police cooperation adequate?
5. Can we identify any fundamental problems that hamper international police cooperation in the Danube countries?
6. What are the possible solutions to the problems identified and how can the efficiency of police cooperation and information flow between the Danube States be further improved, thereby increasing the security of the EU and the Schengen area against inland waterway threats?

A Case description

On 11th of October 2021, the NTCA Mobile River Control Unit inspected the unloading of a Ukrainian flagged vessel (called here as Phoenix for anonymity) at the commercial port of the town of Paks. According to the available information, the cargo of the barge attached to the river tugboat consisted of salt and iodized salt, which were placed in large sling-bags (simply called big-bags) weighing 1.3 tons each. During unloading with a crane, one of the bags ripped open and 6,800 cartons of untaxed cigarettes fell onto the ground.

Customs officers found that the barge and its cargo had originally entered the country on 26th of September 2021 with another Ukrainian tugboat (I called it the Katarina) and entered the country on 27th of September 2021 at Mohács, where the customs office controlled the salt cargo and released it for free circulation. Two days later, the barge containing the salt was transported to Budapest by the Katarina. There, having technical problems at one of the Danube ports hindered the barge from being unloaded, so it was left at river kilometer 1630,7 for some days. The barge remained there until 3rd of October 2021, when the captain of the Phoenix received instructions to transport it to the port of Paks, where unloading would begin on 11th of October.

At the unloading point, Ivan Stepanovich (his name and that of all the others are fictitious names) was present as the person in charge of unloading and checking the goods. With him in the car was Roman Bogatov (both Hungarian nurses of Ukrainian origin), who, according to information obtained during the investigation, had been commissioned by a Hungarian company to supervise the unloading of the salt consignment. The two of them left the scene in a van owned by Ivan Stepanovich in a hurry after the customs control started.

Over the next 6 days, customs officers carried out a detailed inspection of the cargo, which contained a total of 2,375,465 packets of untaxed cigarettes with a value of EUR 1,129,000.

The next day, on 12th of October 2021, the NTCA operational units followed the minibus and the trailer lorry travelling with it. The latter was owned by Sergey Volozin (Ukrainian-Hungarian national) from his own company. Its driver was later identified as Ivan Stepanovich.

¹⁹ Seizures of NTCA. Online: https://nav.gov.hu/vam/felderitesi_eredmenyek (downloaded: 2023.09.11)

NTCA investigators thus discovered a site near Budapest, where they found another 484,410 packets of cigarettes of various Ukrainian brands, exempt from Hungarian taxation, as well as salt used as a cover in the same form and in the same big-bags as the cigarettes seized at the port.

Ivan Stepanovich, Péter Nagy and Győző Takács were at the site, they were loading cigarettes when customs stepped in. They admitted that they were aware of the presence of cigarettes in the warehouse and in several cars parked on the premises. All the three men were arrested. The minibus they were following drove off before the site was approached by customs. It was stopped by NTCA patrols later that day and its driver, Sergei Volozin, was arrested and also detained. Unfortunately, Roman Bogatov had left for Ukraine via Slovakia on the same day and could not be apprehended till the end of the investigation. During a search of the premises, 484,110 packets of cigarettes of uncertified origin were found in several trucks and in the warehouse, just as in Paks, hidden in sacks of salt in the port, and exempt from Hungarian taxation. The total retail value of the tobacco products found and seized in the port of Paks and the warehouse was €1,359,221. In view of the above, the NTCA ordered an investigation on 12 October 2021 under Section 396 of the Hungarian Criminal Code for the well-founded suspicion of committing the crimes of budget fraud and money laundering in violation of Section 399.

B The investigation

The cigarettes found in the port of Paks were subject to excise procedure by the NTCA, the tobacco products were seized on 12 October 2021 and an inspection was carried out at the port and the customs documents were analysed.

Officers interrogated, among others, the agent of the shipping company that cleared the goods through customs in Hungary, the Paks port manager and the crane operator in charge of the loading, who recognised the suspect who was monitoring the unloading. The captain and 3 crew members of the vessel pushing the barge from Budapest to Paks were also questioned as witnesses, and their shipping documents and the invoice of the cargo were seized. The customs clearance company also received instructions from the Hungarian lady and email address from the ship's agents.

According to the customs documents, the consignee in Hungary was a Hungarian Zrt. and the consignor was a Polish company. The customs duty was paid by the Hungarian company and another Hungarian Ltd. According to the original route of the tobacco products found in the port of Paks, the goods should have been unloaded in the port of Csepel. The Hungarian company rents a warehouse in the port of Csepel, where salt was stored at the time of the investigation. The stored salt arrived in two instalments at the end of 2020 and at the beginning of 2021, but it had not yet been shipped that times, so it had been remained there since unloading, which proved that the salt trade was only a cover for the goods and for the activity. The real activity was the trade in tobacco products exempt from excise duty.

The original route of the freight vessel also had to be traced. The tugboat Katarina with a crew of 8 Ukrainians arrived from Vukovar, Croatia on the afternoon of 26. September 2021 and reported for entry at the Border Port in Mohács. According to the customs control sheet, it was carrying six barges, including the one carrying the salt cargo. The route of the vessel was; Izmail (UA) - Reni (UA) - Galati (RO) - Ruse (BG) - Lom (BG) - Veliko-Gradiste (RS) - Smederevo (RS) - Pancevo (RS) - Novi Sad (RS) - Vukovar (HR) - Mohács (HU) - Csepel (HU). The barge with salt was to depart from Izmail and arrive in Csepel next to Budapest. According to the captain of the Phoenix, the barge loaded with salt was berthed at Danube river at string kilometer 1630 for 9 days, and then on 10 October 2021, the dispatcher of the shipping company in Hungary instructed him to push the barge to the port of Paks. (The original tugboat, the

Katarina, was presumably continuing on its journey to Austria.) The captain and crew of the Phoenix were unaware of the cigarettes hidden in the salt cargo.

The results of the Member States' conviction checks in the European Criminal Records Information System (ECRIS) did not surprise investigators as to the persons apprehended in the course of the proceedings. It emerged that Ivan Stepanovich was sentenced to 16 months imprisonment for a customs offence by a competent court in the United Kingdom in 2017 and Győző Takács was convicted of smuggling by a competent court in Sweden in 2014. The investigators also checked whether the above transport was an isolated incident or the next step in a chain. They found that, based on the salt transport data, it could not be ruled out that there had been 4 previous similar shipments between February and July 2021. In these cases, goods transported by Ukrainian vessels and barges were unloaded at the Hungarian port of Csepel, while the companies on the transport documents were identical to those involved in this case.

C Network of companies

The evaluation of the delivery notes and the invoicing chain helped the investigators a lot, and a complex network of companies was drawn up. However, it was easy to separate the international transport and invoicing chain of salt from the cigarette smuggling route, and the data also pointed to the controlling companies in the background. According to the web, a Romanian company buys salt from a Ukrainian producer near the port of Ismail in the Ukrainian Doneck Area and sells it to a Czech company, which is its contractual partner. The Romanian company declares its Intra-Community sales to the Romanian tax authorities in a timely and accurate manner and pays the applicable taxes. However, the consignee of the consignment is a Polish company, so there is a strong presumption that the salt is resold by the Czech company to the Polish company, which in turn sells it to the Hungarian company. According to the information provided by the Romanian authorities, the Czech company is managed and controlled by a company registered in the United Kingdom. A Ukrainian company with a similar name to the British group controls the Ukrainian port of Ismail.

D International exchange of information in the framework of criminal cooperation

In the process of criminal investigation, both procedural legal assistance²⁰ and police - in this case customs - cooperation through the SIENA²¹ channel were used.²² In the first instance, for the sake of speed, information was requested through the SIENA system, which allows the transmission of classified data. In the course of the investigation, in order to fully clarify the facts, NTCA investigators contacted EUROPOL's analytical project "SMOKE" by SIENA message, to cross-check their data, and the Polish, Romanian, Czech and Ukrainian counterparts to exchange information on the companies involved. It happened on 12. October 2021.

The first response from the Romanian authorities was received a day later, with the details of the Romanian company listed as the buyer of the salt consignment. Then, on 15. October 2021,

²⁰ Act CXVI of 2005 on the ratification of the Convention of 29 May 2000 on Mutual Assistance in Criminal Matters between the Member States of the European Union and the Additional Protocol of 16 October 2001. Online: <https://njt.hu/jogszabaly/2005-116-00-00> (downloaded: 2023.09.22)

²¹ SIENA is EUROPOL's secure information exchange network application that facilitates the exchange of criminal information between Member States. Source: Európai Nyomozó: Bűnözők elleni fellépés határokon át. p.7. online: https://www.europol.europa.eu/sites/default/files/documents/hu_europeaninvestigator-hungary_0.pdf (downloaded: 2023.09.22)

²² Act CLXXX of 2012 on criminal cooperation with the Member States of the European Union Online: <https://njt.hu/jogszabaly/2012-180-00-00> (downloaded: 2023.09.22)

a reply was received about a network of companies, the most important part of which was that, according to the information provided by the Romanian customs service, the Czech company in question was controlled by a company registered in the United Kingdom, which could have been behind the cigarette smuggling.

The Czech authorities have also provided company details in their reply about the headquarters and Ukrainian owners of the alleged company in the Czech Republic. On 21. October 2021, the Romanian National Bureau sent a supplementary reply with treatment codes H0 and H1. On 15. October, the Polish National Bureau sent a reply with the same treatment codes, and on 19. October, it sent a supplementary reply with company data for the Polish company. On 23. November 2021, the Polish Border Guard sent a supplementary information report with code H0 containing details of the environmental study on the above company. On 20. October 2021, the Ukrainian National Bureau sent a data report, also with an H0 handling code, concerning Roman Bogatov and one Ukrainian woman, who was identified during the investigation.

During the investigation, the customs officers at the Mohács Border Port also noticed a self-propelled suspicious container vessel belong to a Dutch transport company (called Victory), which declared for entry on 06 June 2022. The ship was carrying 96 empty containers, among other goods, which had been stowed in such a way that they could not be opened until unloading from the ship in Linz, and the NTCA was unable to conduct a full inspection. The consignor was a Romanian company and the consignee was an Austrian company. The containers were loaded onto the ship in Constanta, Romania and were destined for Austria. Following a request sent by the Hungarian investigative authorities via the SIENA system, the Victory and the 96 containers were subjected to a batch control by the Austrian customs authorities four days later. The containers were unloaded from the ship. All containers were opened and their height and length were measured. All containers were empty and no discrepancies were found during the measurements. However, for three containers, customs officials noted during the inspection that the fans were glued down, that there was an intense smell of tobacco inside and that there was tobacco residue on the flooring, which means that they may have been used to transport tobacco products.

The Polish, Romanian, Czech and Ukrainian partner authorities contacted mostly sent their replies via SIENA with an H1 handling code, which means that the information contained in the reply can be handled, stored and processed, but can only be used in criminal proceedings with the prior consent of the sender. It can be placed in the investigation file if the responding partner authority consents, but several countries have indicated in advance that they will not consent to the subsequent raising of the H1 handling code, i.e. the use of the information they provide in criminal proceedings. It was suggested that the information could be re-obtained through judicial channels via mutual legal assistance (European Investigation Order) (Only in rare cases was it possible to find that a particular response, for example from Romania, was given a H0 handling code, so that its data could be placed in the investigation file and used without having to obtain a specific authorisation.)

Due to the above obstacle, the investigators submitted a request to the Prosecutor's Office for a European Investigation Order (EIO) investigation under the procedural legal assistance²³ which they asked the competent Member State to confirm the information previously received in SIENA.

However, the NTCA investigators also received from Romania on 10. February 2022 an European Investigation Decision dated back in 19. October 2021 and carried out the procedural acts requested therein. However, there was information in that decision which indicated that the Romanian investigators had been aware of the method of the offence long before the Hungarian

²³ Act CLXXX of 2012 on Criminal Cooperation with the Member States of the European Union, Section 53 (1). Online: <https://njt.hu/jogszabaly/2012-180-00-00> (downloaded: 28.09.2023)

case, but had not been informed of it, presumably because there was no Hungarian element in the case. In Romania, in early 2021, several Romanian or Moldovan nationals or dual nationals set up an organised criminal group to smuggle cigarettes on the Danube. The investigation against them started on 19. February 2021. The smuggled cigarettes, concealed in salt, were brought in 2 barges by pusher boat from Ukraine near Reni to Romania, where they entered the ports of Galati and Braila and were sold in the Galac county and transported to other EU countries. According to the documents, the salt was bought from a Romanian company in Galati and sold to Polish and Czech companies. One of the barges and the ship that brought it to Hungary were later found in the Hungarian criminal case.

Based on the above, it can be justified that the Hungarian authorities could have known the method of the crime if they had at least received information (not criminal, only law enforcement) from the Romanian side in the framework of a border information exchange. According to the author's consultations with the NTCA liaison officer of the Hungarian Liaison Office of Europol, the information received from Member States on information related to Danube navigation is also very rare. In the last 4 years, such data have been transmitted only twice.

IV. Conclusion

On the Danube River, in the field of inland waterway transport, there is a demonstrable presence of cross-border organised crime groups, which exploit the weaknesses of law enforcement agencies due to the lack of human intelligence and poor risk profiling, and the difficulty of searching goods by technical means - mainly bulk cargo - transported in barges attached to inland waterway tugboats.

Consultations with NTCA investigators have shown that there's no rapid flow of information on the modus operandi of offences, but there is in specific investigations, as illustrated by the rapid response (within 1-5 days) to SIENA messages and, for example, the Austrian customs services searching containers of Danube vessels 4 days after a Hungarian request. In other words, this means that Danube Member States only send requests to each other if there is an investigative string leading to the partner country in a particular case investigated. The SIENA system has been operational since 2018 to assist NTCA investigators, but since then there has been no similar detection or information flow through it.

The initiation of a European Investigation Order has a negative impact on the processing time (it can take week or even months to arrive), but the information contained in the European Investigation Order is automatically available for use in the investigation, whereas for SIENA messages it depends on the handling codes.

The investigation described in the case study also revealed that the Danube smuggling operation was probably far from the first to use this method, which involved a route via Hungary to Western European Member States. Such hard-to-detect cases highlight the presence of a latency in the area of inland waterway vessel offences and make decision-makers understand that this security deficit can also contribute to the large-scale cross-border trafficking of drugs or arms by organised crime!

The flow of information on organised crime on the Danube is therefore facing significant challenges, mainly due to the lack of a regional cooperation platform and a regular forum system. This could be similar to the Black Sea Coordination Centre or the Baltic Sea Regional Border Control Cooperation. The establishment and long-term operation of a Danube Law Enforcement Coordination Centre and Forum could be a solution to the problems identified, which could increase the security of the EU and the Schengen area against inland waterway threats.

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Next-generation DNA Sequencing in the Mirror of Law Enforcement

Balázs Kocsis¹, Norbert Mátrai², Balázs Egyed³

Next-generation sequencing (NGS) also known as massively parallel sequencing (MPS) has been increasingly important in recent years not exclusively in clinical applications, but also in criminal investigations. Several kits (chemical packages) validated for forensics are now available from manufacturers.

Since 2022, one of those kits examining a wide range of STR markers has been introduced into the portfolio of accredited analytical methods in the Hungarian Institute for Forensic Sciences (HIFS). During the internal laboratory validation of the Precision ID GlobalFiler NGS STR Panel v2 kit all quality measures and setting parameters were determined to make the technology available for routine forensic investigations. In the Institute a comprehensive population genetic analysis has been launched to create a representative allele frequency database of the Hungarian population to support the statistical interpretation, in court, of the results generated by the new genetic method. The other aim of the study was to assess the backward compatibility and divergence of the new technology to the traditional capillary electrophoresis.

In order to build up the population database 200 volunteer samples were analysed by the new MPS-STR method until now to create a first version allele frequency database. The developed population database is crucial for the biostatistical calculation and interpretation to measure the weight of evidence in forensic cases. Using the new technology, the increased variability of the observed alleles in the database will elevate the power of discrimination of each genetic evidence. According to recent experience the new MPS technology can be applied to analyse highly degraded and low copy number DNA samples as well.

Keywords: Next-generation sequencing, forensic application, accreditation, criminal cases, weight of evidence

I. Introduction

The multifaceted possibilities given by genetics, especially by forensic genetics, has been widely used during the investigation of real crime cases from the early 90s. The traditional DNA analysis method based on capillary electrophoresis (CE) has long been known and used for forensic DNA analysis in criminal investigations. A lot of experience is already available regarding the possibilities and limitations of these methods and there is no doubt about the validity and usability of the results obtained during these tests. Therefore, forensic DNA analysis has become one of the most important tools of law enforcement today⁴.

Thanks to the continuous development of technology, the success rate of examinations among the increasingly challenging on-site traces are also high. The biggest challenge for forensic genetics is clearly the high demand for testing low copy number (LCN) DNA samples and

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⁴ Pádár et al., 'Genetics and Law Enforcement - The First Quarter of a Century of Forensic DNA-testing in Hungary I.', (2019) DOI: 10.38146/BSZ.2019.12.1

degraded- or mixture samples originating from multiple individuals. From the beginning of the 2000s the manufacturers started to provide validated multiplex PCR/STR kits for forensic DNA analyses. With the first kits, only 3-4 loci could be analysed at the same time with one spectral channel on the first versions of capillary electrophoresis systems. The advent of multi-spectral devices made it possible to analyse more loci at the same time on multiple spectral channels, which lead to the early versions of these multiplex PCR kits. The newer 6 dye panel-STR kits containing sixteen to twenty-three autosomal loci are quite widespread; based on this type of multiplexes the DNA databases also expanded their upload options to include the *ESS*⁵ loci to increase the potential matches with the older and smaller panels. Increasing the number of analysed loci in the human genome was the first step of this development line. However, capillary electrophoresis is limited in the length of amplicons that can be analysed; the longest amplicons in these kits are approximately 450-500 base pairs in length.

In addition, the manufacturers have started to produce panels that use smaller amplicons or more dyes to get valuable information from highly degraded challenging forensic samples. Nowadays there are kits under development with more than 30 loci and as many as 8 dyes, or multiplex PCR systems containing more than twenty markers within 400 bp PCR fragment length⁶. Other kits are designed specifically for degraded samples, which contain less markers but the amplicon sizes of the alleles are much shorter⁷ (not longer than 250-300 bp). However, the developments did not end here.

At the same time when CE was evolving, a new method based on massive parallel sequencing of DNA (MPS) was arisen that is now known as next-generation sequencing (NGS). Over the last decade this methodology has added a new dimension to the field of forensic genetics. It is now possible to examine not only short tandem repeats (STRs), but also single nucleotide polymorphisms (SNPs) and insertion/deletion variations (indels) simultaneously for the identification of individuals or missing persons. Thanks to this capability, MPS offers an advantage over CE systems, because in addition to the length polymorphism, the difference in nucleotide sequences (sequence polymorphism) could be also considered, which has led to a significant increase in the discrimination power of STR genotyping. Moreover, MPS uses shorter amplicons to generate complete STR profiles, making it easier to analyse highly degraded samples.

With every further development, like the introduction of an alternative method, or the development of a new tool, the applied STR markers must be carefully selected. The reasons for this can be found in the existing national criminal DNA databases and in their information content. The Hungarian National Criminal DNA Database is based on the first *CODIS Core-loci*⁸ and *European Standard Set loci (ESS)*, which has been continuously expanded with the addition of new recommended *CODIS Core-loci and ESS loci*. The original *CODIS Core-loci* are the following 13 markers: *CSF1PO*, *FGA*, *TH01*, *TPOX*, *VWA*, *D3S1358*, *D5S818*, *D7S820*, *D8S1179*, *D13S317*, *D16S539*, *D18S51*, *D21S11*, which have been used until December 31, 2016. As a result, the Hungarian DNA database contains the highest proportion of information about these markers. From January 1, 2017 – almost at the same time as the new STR kits appeared – 7 more markers have been added to the recommended marker list: *D1S1656*, *D2S441*, *D2S1338*, *D10S1248*, *D12S391*, *D19S433*, *D22S1045*. One point to be considered is that the Hungarian Institute for Forensic Sciences (HIFS) started to use and register the loci into the database earlier than the recommendation was published. Other markers can also be registered in the databases, as our institute does for additional autosomal markers, like *SE33* locus, which is widely used and analysed in European populations.

⁵ ENFSI DNA Working Group, 'DNA database management review and recommendations. (2022)

⁶ Promega PowerPlex 35GY System; Cat. number: DC3520.

⁷ AB NGM Detect PCR Amplification Kit, Cat. number: A31832.

⁸ Combined DNA Index System

In addition, two other very important aspects must be considered before using new methods for forensic genetic testing: the existence of developmental validation of the new kits/techniques and proof of their usability (verification) to obtain an accredited laboratory process.

The Department of Genetics at the Hungarian Institute for Forensic Sciences (HIFS) has been accredited for the ISO/IEC 17025 standard since the end of 2013 and places great emphasis on continuously improving its quality management. According to the specifications of the standard system the entire institute - including the Department of Genetics - always strives to use validated (by developers, or manufacturers) methods for forensic examinations which aims to include in the range of accredited test methods as soon as possible.

In 2017, the NGS technology was introduced to the department with purchasing the Ion Torrent Next-Generation sequencing⁹ platform (*ThermoFisher Scientific*). With this new technology, the first studies were carried out in HIFS on the mitochondrial genome and was successfully used in real crime cases – at that time there were no available validated autosomal STR genotyping kits on this platform. Shortly afterwards, the first autosomal STR genotyping kits appeared on the market for the new NGS platform, which set the direction of the development. The researcher needed to implement the new method: this was supported by doctoral grants and scholarships¹⁰, like that awarded to the first author of this article.

The aims of our study were (1) to introduce the NGS technology as an accredited method in our routine laboratory testing; (2) to create the first allele frequency database to support the statistical interpretation of the results generated by the new genetic method in court; and (3) to highlight the power of the new technology in the light of justification through two sample cases.

II. Laboratory criteria for the substantiated expert opinion

To ensure that genetic experts deliver the best possible results, the following points are crucial:

- Well-developed and - where possible - validated and accredited (according to ISO/IEC 17025 standard) testing methods.
- Appropriate reference database for biostatistical calculations.
- Appropriate statistical software and established formulas and settings.

In our recent study, CE and NGS technology based STR profiling was performed on 200 volunteer samples to generate a comprehensive allele frequency database for the general Hungarian population. Before collection of the buccal swab samples, written informed consent was obtained from each sample donor. All test steps were carried out according to the accredited process of Department of Genetics at HIFS¹¹ as follows:

- The DNA was extracted from buccal swabs using EZ1 Advanced XL instrument with EZ1&2 DNA Investigator Kit¹², accreditation ID: *VM-G-EZ-R*.
- Genomic DNA was quantified using the Quantifiler Trio DNA Quantification Kit in the 7500 Real-Time PCR System applying the HID Real-Time PCR Analysis Software¹³; accreditation ID: *VM-G-QF-R*.
- Capillary Electrophoresis (PCR/STR); accreditation ID: *VM-G-MP-R*:
 - o samples were amplified using the Promega PowerPlex Fusion 6C System¹⁴ and

⁹ ThermoFisher Scientific Ion Torrent next-generation sequencing system

¹⁰ Ministry of Culture and Innovation of Hungary from the National Research, Development, and Innovation Fund, financed under the KDP-2020 funding scheme

¹¹ Accreditation Certificate, ID NAH-1-1826/2022,

<https://www.nah.gov.hu/hu/szervezet/nemzeti-szakertoi-es-kutato-kozpont-bunugyi-igazsagugyi-szakertoi-igazgatosag-genetikai-szakertoi-intezet-1/>

¹² Qiagen EZ1&2 DNA Investigator Kit

¹³ ThermoFisher Scientific Quantifiler Trio DNA Quantification Kit

¹⁴ Promega PowerPlex Fusion 6C System, Cat. no.: DC2705

- were genotyped on ABI 3500¹⁵ genetic analyzer.
- For the automated Next-Generation Sequencing IonChef Instrument was used together with Ion GeneStudio S5 System which is a semiconductor-based sequencer system¹³:
 - Library preparation was performed using the Precision ID GlobalFiler NGS STR Panel v2¹⁶ kit and the Precision ID Chef DL8 Kits.
 - The pooled libraries were quantified using the Ion Library TaqMan Quantification Kit in the 7500 Real-Time PCR System and were analysed using the HID Real-Time PCR Analysis Software.
 - For template preparation and sequencing Ion S5 Precision ID Sequencing Kit together with Ion 530 Chip were used.

At the beginning of the research the applied NGS method had not yet been accredited: accreditation was in progress and was gained in 2022 with ID: VM-G-NGS-R.

Since 2017, the Promega PowerPlex Fusion 6C System is accredited for both 25µl and 12.5 µl final PCR volume in the laboratory, and mostly measurements are carried out using automated pipetting for better security and sample tracking.

Between 2017 and 2022, a lot of energy was invested to meet all the critical quality parameters of the NGS system, and to understand how does it work. During this period, in addition to carrying out the sensitivity-, mixture-, repeatability-, reproducibility- and stability studies, the analytical threshold, heterozygous imbalance, and stutter ratios were also set. The backward compatibility and convergence of the new (NGS) technology to the traditional capillary electrophoresis systems were also assessed through the 200 volunteer samples on 22 overlapping STR markers plus *Amelogenin* and on the *DYS391* Y chromosome marker (Table 1.). During the concordance analysis only one difference was found¹⁷. This concordance analysis is essential for the confirmation of the equivalence between the two technologies. By the way, there are some differences in the marker list of the Promega PowerPlex Fusion 6C System, and of Precision ID GlobalFiler NGS STR Panel v2 on NGS, however both kits contain all the 21 *CODIS Core-loci* (Table 1).

Table 1: Distribution and overlapping of the analyzed STR loci on the different typing systems and loci sets.
Dark gray: locus is not implemented in the typing system/set.

SE33	AMELX	AMELY	D1S1656	D2S441	D3S1358	FGA	D8S1179	D10S1248	TH01	vWA	D12S391	D18S51	D21S11	D22S1045	D5S818	CSF1PO	D7S820	D13S317	D16S539	D2S1338	TPOX	D19S433	PENTA D	PENTA E	DYS391	D1S1677	D2S1776	D3S4529	D4S2408	D5S2800	D6S1043	D6S474	D12ATAG3	D14S1434	rs2032678				
ESS (European Standard Set) dated from 2009																																							
CODIS Core loci dated from 01. September 2017																																							
PowerPlexFusion 6C System/capillary electrophoresis dated from 2017 (in HIFS)																																							
Precision ID GlobalFiler NGS STR Panel v2/IonTorrent S5 NGS system dated from 2020 (in HIFS)																																							

As a result of the efforts made in the institute during this period, the established NGS STR typing method has been added to the department's list of accredited test methods by the mid-2022.

III The appropriate reference database for biostatistical calculations

The first national allele-frequency database was created and published in the late 90's and in early 2000s. This was created on limited forensic STR markers by traditional PCR and CE technology which was at that time the cutting-edge method in forensic genetics.

¹⁵ ThermoFisher Scientific, 3500xL Genetic Analyzer for Human Identification

¹⁶ ThermoFisher Scientific, Precision ID GlobalFile NGS STR Panel v2

¹⁷ Kocsis et al., 'Forensic Implications of the Discrepancies Caused between NGS and CE Results by New Microvariant Allele at Penta E Microsatellite.' (2023) <https://doi.org/10.3390/genes14051109>

That database was developed on the STR data of 220 unrelated volunteer samples analysed by forensically informative autosomal STR markers^{18,19}. Later this database was extended with additional markers – basically with the new ESS markers – in the early 2010s. Due to the development of the recent NGS based STR profiling technology, there is an urgent need to review the earlier databases, in order to add new markers to the set that contain new genetic information for the allelic discrimination, like nucleotide sequence polymorphism. We are now at this stage.

The number of sequence reads generated by the NGS process elevated so radically that the bioinformatics power requirements are significantly higher compared to previous CE based studies. The results of the NGS sequencing analysis are stored in large informatic files which could be further analysed and visualised using dedicated software packages (like *TorrentBrowser*, *HID Genotyper Plugin*, *Converge* software). One of the most challenging parts of the technology is to store this large amount of data over long periods in time, and to make further biostatistics like LR (likelihood ratio) calculation. The bioinformatic research and development has resulted in the creation of software packages that utilize NGS results to determine the probability of derivation from an individual, and to ascertain the strength of evidence.

In addition to dedicated software packages, a well-established allele frequency database is also a prerequisite for this type of testing. According to the latest recommendation of the professional community, the minimum number of samples required from unrelated individuals in the case of NGS genetic population data publication is 50 samples²⁰. The Hungarian Institute for Forensic Sciences Department of Genetics aims to reach a higher number (i.e. 500 unrelated people) which is required in case of the traditional STR data produced by capillary electrophoresis. To date, we have already analysed 300 volunteer samples using the new NGS method in the laboratory, of which more than 200 have already been evaluated.

From the generated data the allele frequency table for statistical calculation has been prepared in two formats. One was based on the *RU* (*Repeat Unit*) calculation, another in the *RU_LUS* (*Repeat Unit_Longest Uninterrupted Stretch*) format. In the first case, the allele designation is determined only by repeat unit numbers (the same as in CE), while in the second case, the number of the longest uninterrupted stretch (*LUS*²¹) - which is derivate of the bracketed form of the allele sequences (to take into consideration the isoalleles which are caused by sequence difference) - is also taken into account (Table 2).

¹⁸ Egyed et al., ‘*Population Genetic Data on the STR Loci D2S1338, D19S433 and SE33 in Hungary.*’ (2005) [DOI:10.1520/JFS2004479](https://doi.org/10.1520/JFS2004479)

¹⁹ Egyed et al., ‘*Analysis of the population heterogeneity in Hungary using fifteen forensically informative STR markers.*’ (2006) <https://doi.org/10.1016/j.forsciint.2005.07.004>

²⁰ Editors of Forensic Science International: Genetics ‘*Revised guidelines for the publication of genetic population data.*’ (2017) <http://dx.doi.org/10.1016/j.fsigen.2017.06.007>

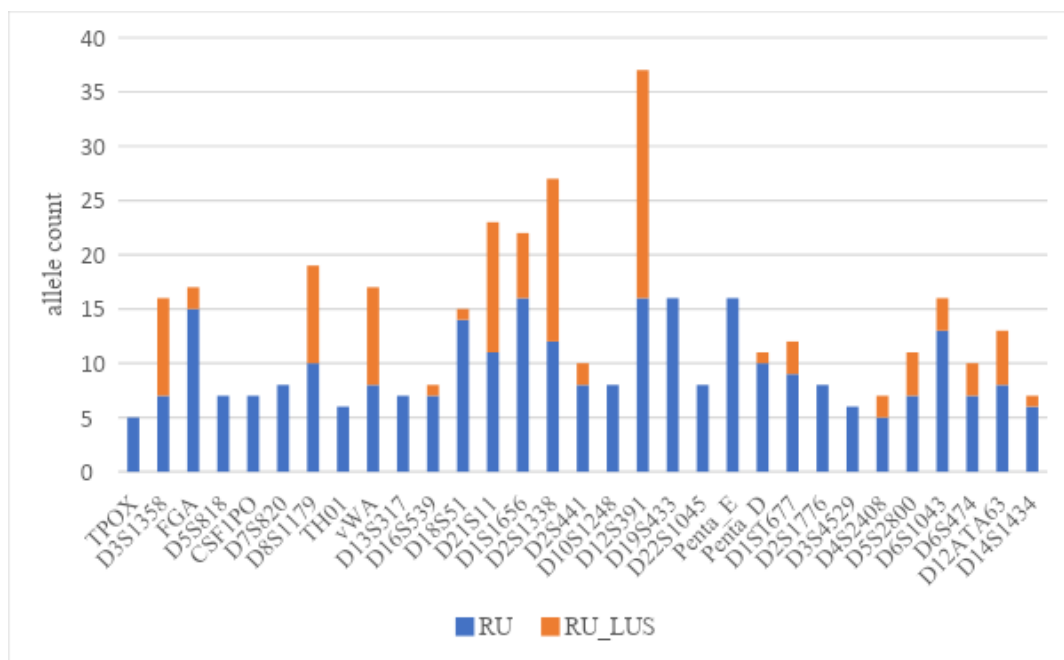
²¹ Justet al., ‘*Use of the LUS in sequence allele designations to facilitate probabilistic genotyping of NGS-based STR typing results.*’ (2018) <https://doi.org/10.1016/j.fsigen.2018.02.016>

Table 2: Example of the two types of allelic determination, designation and frequencies. The RU (Repeat Unit) and RU_LUS (Repeat Unit_Longest Uninterrupted Stretch) based allele frequencies were established on the 200 Hungarian individuals population database.

Locus	Bracketed form of the example alleles (sequencing results)	RU allele designation	RU allele frequency	RU_LUS allele designation	RU_LUS allele frequencies
D8S1179	[TCTA]2 TCTG[TCTA]11	14	0.2525	14_11	0.045
	[TCTA]14	14		14_14	0.0275
	[TCTA]1 TCTG[TCTA]11	14		14_12	0.18

As expected, during the analysis of 200 volunteer samples, several specific structures could be observed at the majority of sequenced STR loci (Figure 1.) due to sequence polymorphisms, therefore the number of allele counts increased significantly in more than the half of the loci.

Figure 1.: Number of observed alleles per locus (31 autosomal loci from Precision ID GlobalFiler NGS STR v2 panel) in relation to RU and RU_LUS formats ²²



What is the relevance and the importance of the two different forms of genotype determination? It is the occasional sequence polymorphism of the determined allele (like allele 14 in Table 2), which could harbour differing sequences between two, otherwise seemingly identical alleles. For example in Table 2, two persons can have the similar allele 14 in a locus by traditional RU based typing, however it could be differentiated in their sequence motif: first person's allele could be determined as 14_11, while the second as 14_12 allele in the *RU_LUS* format.

²² The orange bars present the increased allele counts.

In addition, this type of diversity which could not be detected technically by traditional capillary electrophoresis, is also considered during the likelihood ratio calculations (LR^{23,24}), which uses the previously described and prepared allelic-frequency databases.

The basic principle of allele frequency databases is that alleles which are rarely observed in a given population correspond to lower frequencies, and vice versa. If the frequency of a given allele is low, the LR value calculated by the software for that allele will be high, thus increasing the overall weight of evidence (Table 2). For instance in Table 2. the RU-based allele 14 at locus D18S1179 has a frequency of 0.2525. However, in the RU_LUS based allele frequency table, due to the appearance of three isoalleles, the allele frequency of 0.2525 will be fragmented into the following frequency values for the four RU_LUS alleles: 14_11: 0.045; 14_12: 0.18; 14_14: 0.0275. This finding will have considerable relevance to the probability of the derivation from an individual, and to the weight of evidence (LR calculation).

Thanks to the fact that the first version of the allele-frequency database has been completed, which is based on less but still a sufficient amount of data, there is a possibility to start to fulfil the first statistical calculations and collecting experience. However, for a better resolution of calculations there is a constant need to elevate the number up to 500 samples on which the allele-frequency database is based. After reaching this point, the whole database could be published and used routinely not only for kinship testing (identification of deceased persons) but also for several types of crime cases (the derivation of traces from an unknown person).

III. Appropriate statistical software and well-designed settings

Several statistical calculation programs are already available, many of which have been validated for forensic genetic purposes and are available either in open-source format or for purchasing. To analyse low copy number or mixed DNA traces the applied software can operate the following statistical models:

- Consensus method: A consensus genetic profile is created by keeping the alleles that are present in at least half of the replicates. Calculations based only on the presence/absence of the alleles (*LRmixStudio*²⁵).
- Semi-continuous method: all replicates are considered separately without creating a consensus profile. Calculations based only on the presence/absence of the alleles. (*LRmixStudio*).
- Continuous method: all replicates are considered separately without creating a consensus profile, but the RFU intensity (in case of CE) or the number of sequence reads (in case of NGS) are applied to the calculation in addition to the presence/absence of the alleles (e.g. *DNAXs*²⁶, or *EuroForMix*²⁷).

According to the ISFG recommendation published in 2018²⁸, “*probabilistic models are now preferred instead of the consensus approach*” (Recommendation 6); where drop-in, drop-out,

²³ Gillet et al., ‘DNA commission of the International Society of Forensic genetics: Recommendations on the interpretation of mixtures.’ (2006) <https://doi.org/10.1016/j.forsciint.2006.04.009>

²⁴ The ISFG recommends the likelihood ratio (LR) calculation method for analysing and interpreting forensic DNA mixtures to evaluate the evidential support for the identification hypothesis that a suspect contributed their DNA to the biological evidence.

²⁵ <https://www.isfg.org/Software#dna021>

²⁶ Benschop et al., “*DNAXs/DNAStatistX: Development and validation of a software suite for the data management and probabilistic interpretation of DNA profiles.*” (2019) <https://doi.org/10.1016/j.fsigen.2019.06.015>

²⁷ Bleka et al., ‘*EuroForMix: An open source software based on a continuous model to evaluate STR DNA profiles from a mixture of contributors with artefacts.*’ (2016) <https://doi.org/10.1016/j.fsigen.2015.11.008>

²⁸ Gill et al., ‘DNA commission of the International society for forensic genetics: Assessing the value of forensic biological evidence - Guidelines highlighting the importance of propositions. Part II: Evaluation of biological traces considering activity level propositions.’ (2020) <https://doi.org/10.1016/j.fsigen.2019.102186>

peak height variability or relationships can aid a scientific approach, using continuous testing and model validation software.

Until present for NGS data interpretation *EuroForMix* software was tested and used in our department. The software can calculate genotype data in both RU and RU_LUS format, therefore the read numbers per allele are integrated in the calculations, furthermore these calculations could be performed with or without stutter-models. The software can specify a potential degradation model for DNA profiles based on the quality of the uploaded DNA profile. In the case of Precision ID GlobalFiler NGS STR results this model could not have been used until now due to the absence of the software developer settings related to the panel. This gap will be filled through collaborative work between the developer and our Institute. The strength of the technology will be illustrated through the following two cases.

IV. Case 1

An incomplete neurocranium missing the entire facial region was dug out during a construction work (Picture 1).

Picture 1: Frontal picture from the incomplete brain skull.



No other bones, clothes or personal documents were found. For the genetic analyses the petrous bone of the skull has been cut out. The petrous bone was milled and powdered in a *Retch Cryomill* instrument using our accredited method (*VM-G-CSP:2017⁸*) and two DNA extraction were made in a *Automate Express* Instrument with the *Prepfilier BTA Kit (ThermoFisher Scientific)* according to the accredited method of the laboratory (*VM-G-AE-R⁸*).

The quantity of the two DNA isolates were measured on 7500 Real-Time PCR system with *Quantifiler™ Trio DNA Quantification Kit (VM-G-QF-R⁸)*. Both DNA isolates contained DNA in a very low concentration and in a highly degraded state. In addition, DNA genotyping was attempted by the traditional multiplex PCR/STR technology (altogether four PCR/STR experiments with two different type of kits) on CE, and with NGS technology (three replicates on two different libraries). The results are shown in Table 3., however the real genotypes cannot be presented here, because of the special personal data.

Table 3: The genotyping results of the os petrosa of the cranium by traditional PCR based CE and by the new NGS methods²⁹ Genotype data cannot be presented due to the personal genetic data.

Method	Capillary Electrophoresis	NGS
Kit/Locus	Promega PowerPlex Fusion 6C + GlobalFiler kit (ThermoFisher Scientific)	Precision ID GlobalFiler NGS STR Panel v2 (ThermoFisher Scientific)
AMEL	X	X
D10S1248	failed	failed
vWA	successful	successful
D16S539	successful	successful
D2S1338	failed	successful
D8S1179	successful	successful
D21S11	failed	failed
D18S51	failed	successful
D22S1045	successful	failed
D19S433	successful	successful
TH01	successful	successful
FGA	failed	failed
D2S441	successful	successful
D3S1358	successful	successful
D1S1656	successful	failed
D12S391	successful	successful
Penta E	failed	failed
Penta D	failed	failed
SE33	failed	Not included in the kit
D7S820	failed	failed
CSF1PO	failed	successful
D13S317	failed	successful
TPOX	failed	successful
D5S818	failed	failed
D12ATA63	Not included in the kit	successful
D14S1434	Not included in the kit	successful
D1S1677	Not included in the kit	successful
D2S1776	Not included in the kit	successful
D3S4529	Not included in the kit	successful
D4S2408	Not included in the kit	failed
D5S2800	Not included in the kit	successful
D6S1043	Not included in the kit	successful
D6S474	Not included in the kit	successful

Only 10 loci plus Amelogenin (sex determining locus) were successfully determined by CE method (from which 6 out of 10 were homozygous) – that result was enough only for a restricted database search. Nonetheless, in case of NGS typing 21 STR loci plus Amelogenin were successfully evaluated, which is a significant increase in the number of determined loci. According to the DNA quantitation the DNA was highly degraded, so the increase in evaluated loci could be due to the fact that NGS works with much shorter fragments, and with more sensitive detection technology.

Unfortunately, there were no reference samples available for a comparison at that time, therefore no direct probabilistic statistical calculation could be performed. However it was

²⁹Genotype data cannot be presented due to the personal genetic data.

concluded that the probability of a possible direct match within the database is much higher with NGS results (21 loci) than only with CE genotypes (10 loci). The updated DNA profile has been uploaded to the national criminal DNA database (CODIS) and is under permanent search.

V. Case 2

Demonstrative tests were used during the validation of the Precision ID GlobalFiler NGS STR system, where female/male DNA mixture samples were created in different ratios for the representation of a typical sexual assault case sample. The analytical results of 19:1 female:male DNA ratio (475 pg female DNA plus 25 pg male DNA mixed as input to the PCR reaction) sample were used for the further statistical calculation and interpretation. This type of mixed biological traces are typical in case of sexual assaults, where in addition to the dominant female-, the minor male biological material is only present to a lesser extent.

To identify the perpetrator through statistical calculations is a big challenge for these types of samples. Typically, the presence of the major female donor (usually the victim from whom the sample was provided) could be fixed for the biostatistical calculations under the applied hypotheses (H_p - hypothesis of prosecution and the H_d - hypothesis of defence) so the statistical calculations can be done according to Table 4.

Table 4: Results of the statistical calculations³⁰

Female:male ratio 19:1= 475:25 pg input DNA	CE	CE	NGS RU data	NGS RU_LUS data
Type of the methods	Semi-continuous replicates, drop-in, drop-out rates are considered	Continuous replicates, drop-in, drop-out estimation model and peak-heights are considered, stutter-models used		
Used software for biostatistics	LRmixStudio	EuroForMix		
Number of replicates taken into account	3			
Number of analysed autosomal loci	22		31	
LR (likelihood ratio) value	$1.07 \cdot 10^{-6}$	$2.5 \cdot 10^5$	$2.19 \cdot 10^{17}$	$1.07 \cdot 10^{19}$
Oral interpretation	Exclusive	Supportive	Extremely supportive	Extremely supportive

No allele drop-out was observed in case of the major donor, however in case of the minor donor several were found (25%). The number of analysed loci were 31 in case of NGS and 22 in case of CE kits, so proportionally more loci results can be used for statistics in case of NGS method (Table 4.). Furthermore, the possible nucleotide polymorphism – which can only be analysed by NGS not by CE kits – can elevate the statistical value of the DNA evidence.

The likelihood ratios have been steadily increased according to the type of method used. According to the CE results using the semi-continuous method the presence of the minor contributor can be excluded. However, using the continuous method, the presence of the minor contributor could be slightly supported in the 22 loci.

³⁰ The alleles of the major (female) donor were fixed during the calculation. CE=Capillary Electrophoresis; NGS=Next Generation Sequencing; RU: calculation made by sequencing results in Repeat Unit data format; RU_LUS: calculation made by sequencing results in Repeat Unit_Longest Uninterrupted Stretch data format.

For NGS-based calculations, the weight of evidence was extremely supportive in both types of data (*RU* and *RU_LUS*) where the highest LR rate was obtained for the *RU_LUS* NGS data. This may be due to the elevated number of analysed loci and the allele frequencies of the observed isoalleles. An instance of the latter can be found in the calculation of the LR value for locus D8S1179. The software-derived LR value based on *RU* data was 4.36, in contrast, the LR value calculated on *RU_LUS* allele designation was 109.2, which was about 20 times elevation in LR value. The minor (male) donor had *RU*-based allele 14 and *RU_LUS* allele 14_14 at this locus. For more details, see Table 2.

VI. Summary

In this study maybe the most important technological developments and trends were presented that have characterised the field of forensic genetics over the past 20 years. The pace of technological development has accelerated during the last decade to such an extent that it is often challenging to keep up for the users and experts too.

The main goal of the Hungarian Institute for Forensic Sciences is to follow this model line with introducing the new technologies into the forensic practice. However, these new technologies require a lot of investments, namely: infrastructure, laboratory equipments, reagents, instruments, automation, good laboratory practice, staff and ongoing education. The NGS based STR genotyping technology together with the appropriate biostatistical and interpretation method can put a new tool into the hands of forensic experts and for the law enforcement. Together with an established allele-frequency database the Hungarian Institute for Forensic Sciences covered a milestone where NGS DNA technology can contribute to both solving of criminal cases, or identifying missing persons. Of course, the work cannot stop here. There are still much to be done: the size of the database has to be elevated to a minimum of 500 individuals; population comparison studies must be done to establish the population structuring effects that have to be considered during biostatistical calculations.

Using the new NGS technology, the increased variability of the observed alleles in the database will elevate the power of genetic evidence. In addition, according to recent experience, the new NGS technology can be applied to analyse highly degraded and low copy number DNA samples. At the same time, there is an ongoing need for the continuation of population genetic studies to refresh the allele-frequency databases alongside the laboratory developments, to make the laboratory results more tangible and comprehensible for the participants in judicial proceedings.

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The Possibilities of Defining and Measuring Teacher Performance in the Police Officer Training System

Gábor Kovács¹

The Faculty of Law Enforcement of Ludovika University of Public Service in Budapest, Hungary has been training law enforcement officers under a new system since 2012. During the years that have passed, the training, teaching and educational work of our colleagues at the Faculty of Law Enforcement has undergone significant qualitative changes. The paper presents good practices in measuring the performance of teachers, ensuring continuous accountability, and ways to motivate the colleagues.

Professionals interested in the topic can use the essay to gain ideas and useful practical knowledge on the subject, which they can implement in their own organisations and compare with current practice.

Keywords: LUPS - Faculty of Law Enforcement, teachers performance measurement, management practice, leadership competencies.

I. Introduction

The Faculty of Law Enforcement at the Ludovika University of Public Service is the education centre for Hungarian high-level law enforcement professionals. The training and education process is extremely complex. In addition the law enforcement officer candidates also have to be educate. This task requires a dedicated teaching staff. The leadership and the teachers of the faculty must also meet the teaching requirements generally established in the Hungarian higher education system. The task is therefore twofold: to maintain a high level of professional excellence and, at the same time, to advance in the system of teaching grades.

How can be achieve in such a way that, teachers do not feel constantly monitored and challenged, but their performance can be measure? The theory of management and organisation can help on performance measurement and the teachers performance appraisal system introduced of the university.

II. Elements of the management process

The leadership of different organisation is a complex process that requires an understanding of the basics of management theory. Every management task begins with the collection, analysis and evaluation of information. First, the information has been assessed, the next step is the pre-decision planning, during which different actions are developed. The model evaluates the consequences of implementing each of these options. The most important management function is the decision, which is the optimal choice of possible solutions. After the decision, the leader organises the work and starts the activity.

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Figure 1: Elements of the management process²



In order to achieve the leader's and organizational's goals, the leadership of the university must constantly monitoring the implementation. This management function is to providing the conditions for work, the manager also removes obstacles and distractions to the planned functioning of the organisation. This management functions not work on a similar principle to cybernetics, this is more complex, because human factors are less predictable due to their individual nature.

A The control system

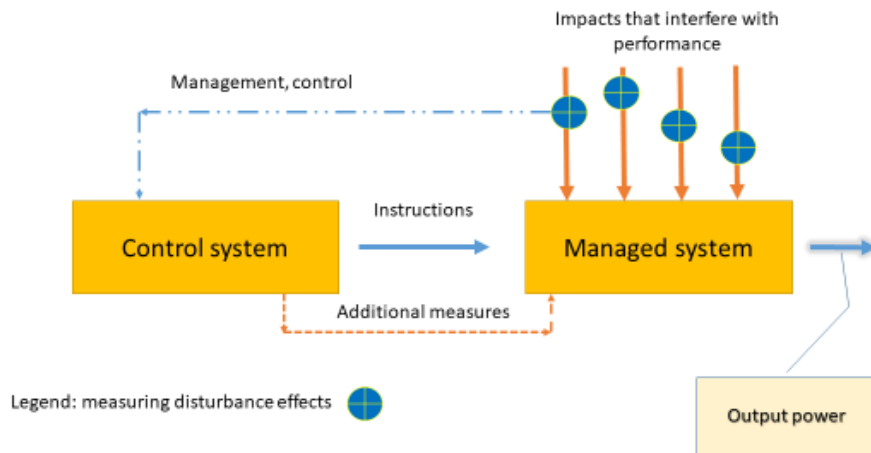
The control is a management function exercised by a manager who intervenes in a process to: initiate it; maintain it at a prescribed level; change it as desired; and stop it.

Control does not restart the management process, but eliminates minor distractions. It is usually a direct form of external intervention. The most common form of which is verbal or written instruction. It is a short-term intervention in the organisation's activities, undertaken by the manager with the priority of meeting the objective.

As a leader, we must ensure that we can easily justify the correctness of our decision, that we can prove that the new task, the new situation, required the managerial intervention that this decision implies.

² Source: compiled by the author.

Figure 2: The control system³



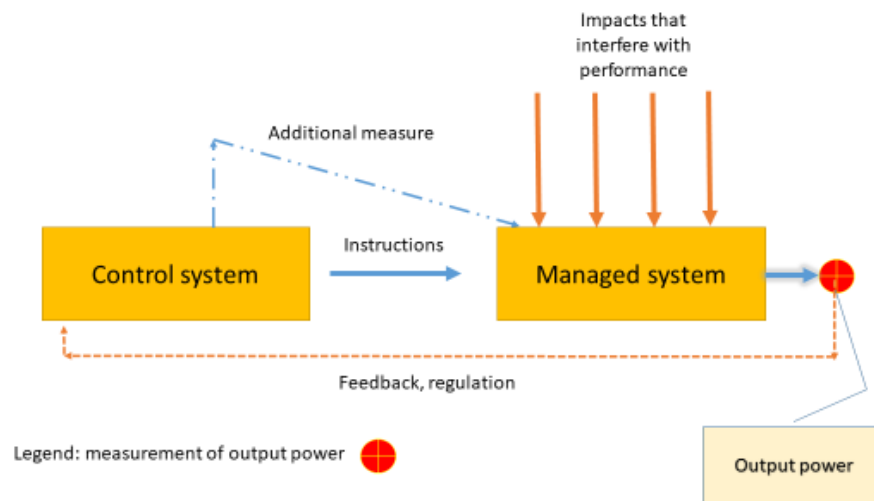
In control, the control system detects disturbances before they reach the controlled subsystem. Control is based on information and responses from the system's environment. The controlling entity compensates for the effects that occur, but without fundamentally changing the action taken to implement the original task system. The success of the task implementation depends on the implementer having the capabilities to ensure the success of the action against the adverse effects.

B The regulation system

Regulation is the most commonly used form of management in organisations, as it allows for rapid, operational intervention by the supervisor. The process involves control, enforcement and interference. In the process, the controller operates an organisation that detects disturbances and recognises the need for intervention. A critical point in the application of the system is the definition of the intervention threshold, the precise clarification of the decision making powers, communication, precise and rapid action and its implementation, monitoring of changes in the situation, continuous feedback.

³ Source: compiled by the author.

Figure 3: Scheme of regulation (schematic diagram)⁴



Implementation is followed by monitoring and then evaluation. The management process does not end, but starts again, as new information is generated following monitoring and evaluation.

C Control or regulation?

In the science of management and organisational theory, there are no answers that can be applied exclusively to solve a given problem. The right solutions are provided by the characteristics of the organisational structure, the organisational culture and the management system. If we have an organisation, that implements continuous control, then control methods should be the first priority. If our management system is more a mix of democratic and laissez faire management styles, then it is more appropriate to use the control methods.

Ideally, both methods are appropriate, but the use of the control method simplifies the 'day-to-day' work, as there is no close control, but accountability is cyclical.

III. Monitoring the activities of organisations

A The feedback, the control

In the management cycle, the feedback is the control, which is always a comparison: the comparison of the actual state of affairs as perceived with the imagined, expected state of affairs as envisaged in the plan.

Control is one of the most important and credible sources of management information, which has an impact on all the organisation's activities (planning, organisation and operational management). A well-functioning information system is one of the foundations of control, and the information or parts of information that come to our knowledge can have a significant influence on the direction and areas of control.

Control itself, like all the other elements of the management process, accompanies the whole management process and is present in all its elements. In fact, every manager checks every time he comes into contact with the colleagues, in order to gather impressions and information about the activity.

⁴ Source: compiled by the author.

Larger organisations may also set up autonomous units (departments, groups) responsible for carrying out central control activities at the organisational level. Usually under the direct authority of the manager - who is responsible for the tasks.

"Control is therefore a management function exercised by a manager at a given level to ascertain where subordinates are in the execution of the tasks set, to what extent they have been carried out and whether the objectives set have been achieved."⁵

The purpose of the control is to improve the quality of work, to confirm the correct and appropriate processes, to detect unfavourable phenomena and errors in the work process as early as possible, in order to correct them. The audit also informs managers of the correctness or incorrectness of the decisions they have previously taken.

At all levels of management, it is necessary for the manager to know and monitor the activities of his subordinates and their results. The dual nature of management requires the manager to provide the conditions for work and to motivate his staff. The manager must be aware of and constantly evaluate the performance of his/her subordinates and draw their attention to any errors or omissions in good time. A manager's assessment of his work is ideal when he is aware of the real performance of his staff and his organisation and the consequences of the decisions he has taken.

B The evaluation

Monitoring provides feedback not only on individual performance, but also on the quality of the functioning of organisational functions (information system, planning, decision-making, organisation, coordination, control, evaluation) and ultimately on the management quality of the organisation. Evaluation is a management function whereby the manager confirms to the subordinate how the task was performed, the extent of success or failure."⁶

Activity appraisal is a system that spans the entire management process, in which the manager confirms to the subordinate how the task has been performed.

There are many ways of valuing, not all of them financial. There are many opportunities in the hands of the manager, which the employee will welcome as a discount/recognition/reward. This could include a trip abroad, participation in a conference, enrolment in a language course, support for learning in a regular school, professional trips, an exceptional day off and other similar benefits.

IV. Implementation of performance measurement at the Faculty of Law Enforcement

Performance evaluation ensures that the activities of staff are continuously measured and monitored.

Principles for implementing performance measurement:

- *Legality, professionalism.* All measurements should be legal and professional. Any monitoring should be carried out only in compliance with the relevant legislation or other professional rules and with a high level of knowledge of them.
- *Expediency, planning.* Measurement should be consistent with the various periodic work and control plans,

⁵ Gabor Kovacs (2018): *Leadership processes in law enforcement organisations*. Based on Dialóg Campus 66-67 - revised by the author.

file:///D:/Users/kovacs/Downloads/web_PDF_Rendeszeti_szervezetekben_lejatszodo_vezetesi_folyamatok.pdf (Date of download: 09.10.2023).

⁶ Gabor Kovacs (2018): *Leadership processes in law enforcement organisations*. Based on Dialóg Campus 71 - revised by the author.

file:///D:/Users/kovacs/Downloads/web_PDF_Rendeszeti_szervezetekben_lejatszodo_vezetesi_folyamatok.pdf (Date of download: 07.10.2023).

- *Objectivity-complexity.* Performance measurement should aim at establishing the real facts, taking into account other factors where necessary.
- *Credibility-Publicity.* The fact, method, findings and other relevant elements of performance should be documented in all cases according to appropriate requirements.
- *Collaboration.* In all performance measurement activities, there shall be mutual cooperation between those involved in the assessment and the persons and bodies concerned in order to ensure the effectiveness of the monitoring activity.

It is also clear from the monitoring function that all managers and management bodies have a duty to regularly monitor the work of the organisation and individuals.

The lack of this would be to the detriment of both the manager and the implementing organisation, as feedback on the effectiveness of the work done would be lost...

A On measuring and evaluating the performance of teachers staff of the Faculty of Law Enforcement⁷

The Faculty of Law Enforcement is an integral part of the University, so the University regulations are also faculty regulations. The scope of the regulations covers all staff employed as lecturers, researchers or teachers.

B The role of academic performance measurement and evaluation

To strengthen academic excellence, develop the competences of employees, and provide support for management personnel decisions related to employees. Effectively contribute to the evaluation of employees the results of the University.

In the teaching and research posts, performance are evaluate separately for academic and individual objectives. Each performance appraisal criteria defined specific appraisal indicators for teaching and research posts. Indicators are assigned a specific score per unit of performance. The total points obtained in the assessment added to the management assessment points in the following proportions: a) 100% for high level senior managers, b) 75% for senior managers, c) 50% for middle, unit and other managers.

Part-time employees shall be entitled to a discount in proportion to the length of the part-time work: a) for 20 hours per week 25%, b) for 30 hours per week 12.5%.

C Results of the performance assessment

The aggregate result of the performance assessment is determined on the basis of the order of the indicators (values), so that the total number of employees, or the total number of employees according to the performance indicator:

- top 10% excellent;
- the next 10% of are outstanding;
- the next 30% of are good;
- the next 40% of are adequate;
- the bottom 10% of the next 10% receive an unsatisfactory rating.⁸

The evaluation system ensures continuous improvement of results from year to year. Performance assessment is carried out electronically via the dedicated “TÉR” digital application (<https://nke-ter.uni-nke.hu/auth/login>). Performance measurement forms are completed by the teaching, research staff member on the digital interface, each year at the latest of 30 September.

The annual performance evaluation indicators will result in a financial award, the amount of which will be subject to the financial possibilities available at the time.

⁷ Rector's Instruction No. 7/2023, Results of the performance evaluation 5 § 3p. (Date of download: 25.10.2023).

⁸ Rector's Instruction No. 7/2023, Results of the performance evaluation 5 § 3p. (Date of download: 25.10.2023).

If the result of the annual performance evaluation is "Unsatisfactory", an exceptional rating may be given within 30 days. If the result of the performance appraisal is "Unsatisfactory" for two consecutive years, the legal consequences described in the legislation shall apply.

V. Performance evaluation criteria

Evaluation criteria for the achievement of university objectives and development (professors, lecturers, researchers)

1. Educational performance.
2. Talent management.
3. Doctoral education.
4. Individual research, publishing, academic performance.
5. Scientific organisation.
6. University public activities.
7. Activity in institutional and academic competitions.
8. Other activities undertaken and carried out in the interests of the institution.
9. Assessment of leadership (for those holding a management position).

Performance evaluation criteria relevant to teaching posts (teachers)

1. Teaching time as % of compulsory teaching time.
2. Optional: Teaching/research teaching performance indicator.
3. Optional: Academic performance not included in other categories, certified by the responsible dean.
4. Other activities undertaken and performed in the interest of the university.
5. Assessment of leadership (for those holding a management position).⁹

All certificates must be attach in digital format to upload the digital interface. The submission of the data is the responsibility of each colleagues and will be verified by their leaders. The system itself is easy to use and can be continuously uploaded time to time throughout the year as data becomes available.

VI. The benefits of an academic performance appraisal system

In previous years, filling in, checking and evaluating paper-based performance appraisal forms required a lot of time and energy from staff and leaders. The digital switchover has made the system easier to operate and the processing of experience can further improve the accuracy of the evaluation. The performance appraisal system itself is constantly evolving; the feedback shows that the system continues to improving year by year.

Advantages of the performance appraisal system:

- the definition of evaluation indicators is a complex system covering all the activities of the employee,
- is based on self-reporting and self-assessment,
- data are not distorted, direct data are provided,
- is a subjective system based on real and credible data,
- has clearly defined and clear requirements for all users,
- is based on a digital system, available everywhere, well archived,
- scores and results are used to establish a clear ranking,

⁹ Rector's Instruction No. 7/2023, Annex 1. Performance evaluation criteria, measurement/evaluation indicators and the evaluation scores assigned to them for employees covered by the Instruction 7.p (Date of download: 15.10.2023).

- provides differentiated assessment, with different groups of files being assessed according to different criteria,
- is a banded (percentage) assessment, providing a continuous incentive for staff,
- the evaluation system can be continuously improved by collecting and incorporating user opinions and comments,
- the entire system respects privacy and data protection rules,
- can be flexibly modified according to the organisational interest, based on management decisions, with each evaluation element and its associated score,
- statistical analysis can be performed on the data collected,
- the system effectively supports the achievement of organisational objectives.

VII. Conclusion

As we have seen in the essay, control is one of the most important management function in the management process. The experience gathered in this way provides important information about the activities of our organisation. Some organisations and some managers make the mistake of not paying much attention to the importance of monitoring.

It is very important, remarks: if the managers have opportunity, set up their own control system within their organisation, this system is an excellent example. All managers are encouraged to intervene in the processes within their organisation on the basis of the collected information. In this work they have to use the different methods of management and control. This is what the Faculty of Law Enforcement of the Ludovika University of Public Service has done.

The method has worked, and individual and organisational performance has improved significantly compared to previous years.

I recommend the introduced good practice in measuring academic performance in all higher education institutions.

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file:///D:/Users/kovacsg/Downloads/web_PDF_Rendeszeti_szervezetekben_lejatszodo_vezetesi_folyamatok.pdf (Date of download: 09.10.2023).

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Rector's Instruction No. 7/2023, Annex 1. Performance evaluation criteria, measurement/evaluation indicators and the evaluation scores assigned to them for employees covered by the Instruction 7.p (Date of download: 15.10.2023).

An Empirical Study of the Finance Guard Service in the Light of the Recruits

Adrienn Magasvári¹, Zágon Csaba²

Public sector organisations in Hungary and other OECD countries face significant recruitment challenges. The growing presence of Generation Z in the labour market led to additional difficulties for most public administration and law enforcement agencies, including revenue services. Not just recruiting but retaining staff has become increasingly complex. Moreover, as most public administration and law enforcement agencies have experienced recently, the tax and customs authorities are not quite popular among youngsters starting their careers. These are the drivers why the profession of tax and customs administrations are also facing recruitment problems, in which recruiting Z Generation candidates on a broader scale should have been a game-changer solution. In this paper, the authors examine to what extent are the expectations of the finance guard officer's profession in line with the generational needs of the actual candidates. Researchers developed a quantitative database by questioning a focal group. In addition to the analysis of the socio-demographic characteristics of the respondents, the questionnaire was used to investigate their career choice and knowledge of the finance guard officers' profession. A total of 192 university students participated in the comparative survey. In line with the preliminary assumptions, the results confirmed that the financial rewards of a decent living, the possibility of a varied work experience, the opportunities for learning and development, and the ability to work in a team are the key aspects that enhance the attractiveness of the profession mentioned above. However, the constraints, the need to respect rules, the strong impact of the profession on personal life, the need for loyalty, and the lack of a foreseeable career path all pose serious barriers between Generation Z and the revenue agency, challenging job orientation and retention.

Keywords: finance guard service, Generation Z, recruitment, job orientation

I. Introduction

Cadets who successfully completed the bachelor programme for finance guards³ at the Faculty of Law Enforcement (FoLE) of the Ludovika University of Public Service (LUPS) become a consciously planned and properly trained officer capacity for the National Tax and Customs Administration (NTCA) primarily in its law enforcement, customs and excise administration and criminal investigation sectors. In recent years, they have almost been exclusively liable for recruiting new finance guard officer staff⁴ due to the continuing staff shortages, repeated admission suspension periods and other recruitment and retention difficulties faced by the entire public administration sector,⁵ including the law enforcement agencies and the NTCA.

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³ Andrea Szabó, 'A tisztjelölti jogállás sajátosságai', in *Integrált pénzügyőri ismeretek 1.*, ed. by Ákos Erdős, (Budapest: Magyar Rendészettudományi Társaság Vám- és Pénzügyőri Tagozata, 2021) 108-142.

⁴ Finance guard officers follow military rank grading system traditionally in Hungary. They are typically

⁵ Zoltán Hazafi, 'A közigazgatás létszáma a személyzetpolitika szemszögéből' *Pro Publico Bono – Magyar Közigazgatás* 4, no 3 (2016), 92–105.; Emese Belényesi, Edina Kriskó and Éva Pallai 'Jelentés a közigazgatási pályaeorientációs képzéssel kapcsolatos igényfelmérés eredményeiről', in *A közszolgálat emberierőforrás-gazdálkodási rendszerének fejlesztését szolgáló kutatások jelentései I.*, eds. by Gabriella Csóka and Gábor Szakács,

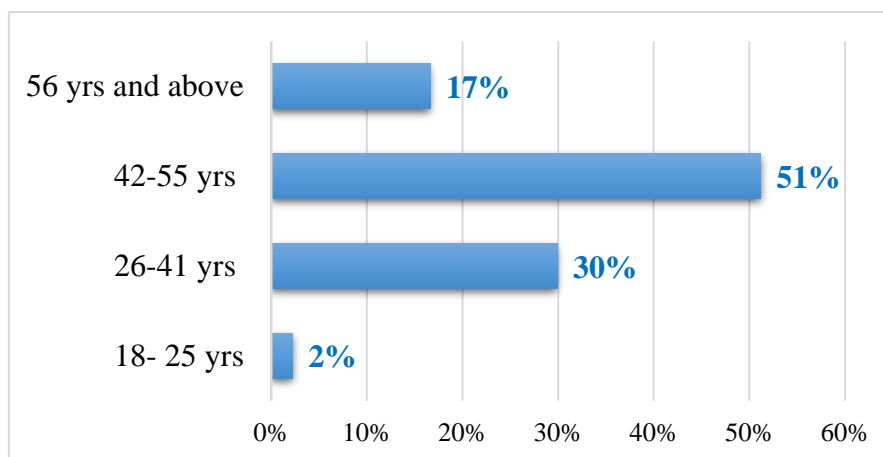
However, considering the organisational age structure, these young finance guard officers form the only significant source of recruits. Given the ageing human resources, they include the new generation on which the organisation can build its future. These are the staff to whom the values and standards of the profession can be passed on and who can guarantee the profession's survival. The attitude and commitment with which they enter the service, and whether they see their work as a vocation, are therefore not irrelevant.

By preventing the inflow of trainable and motivated workers who have yet to reach their competence limits into the organisation, introducing a staff freeze has one of the most devastating effects on the functioning of organisations. On the one hand, this measure prevents finding replacements to fill vacancy gaps caused by staff turnover. On the other hand, organisational effectiveness studies reveal that some employees occupy positions producing unsatisfactory performance levels. Recruits will do work that old employees who have already reached their level of incompetence cannot do.⁶ It is also true that new competencies are yet to be available to the generation entering the workplace, as we have seen during the digital explosion, in which skill development is unavailable or unsuitable in the frames of in-house training. For that reason, keeping the influx is of critical importance.

Therefore, the NCTA's performance of its tasks is significantly hampered by the repeated staff freezes and continuously decreasing number of authorised staff year after year. In 2011, when the two predecessor bodies, the Tax and Financial Control Administration and the Hungarian Customs and Finance Guard merged, the number of authorised staff was 23060. This figure has steadily decreased over the past decade, falling by 20% by 2021. The turnover rate in 2021 was 5%.⁷

The average age of all employees in the organisation is 45-47 years, similar to the age profile of the finance guard officers. Based on information from the NAV's human resources department, the age distribution of employees was as shown in Figure 1 in 2022.

Figure 1: Age distribution of NCTA's staff⁸



(Budapest: Nemzeti Közszoigálati Egyetem, 2018) 77-143.; Csilla Paksi-Petró, 'Utánpótlás-politikai kihívások a közigazgatásban', *Pro Publico Bono – Magyar Közigazgatás* 6, no 2 (2018), 106 -127.; Erzsébet Tózsér, 'Generációk és vezetői attitűd a rendőrség szervezetében', in *A haza szolgálatában. Konferenciakötet*, eds. by Noémi Emőke Baráth and Viktória Lilla Pató, (Budapest: Nemzeti Közszoigálati Egyetem, 2019), 165-173.; László Christián and Ákos Erdős, 'Vészharang és jubileum? A rendészeti felsőoktatás kilátásai, a tisztjelöltek toborzásának és életpályára állításának nehézségei', *Belügyi Szemle* 68, no 12 (2020), 11-42.

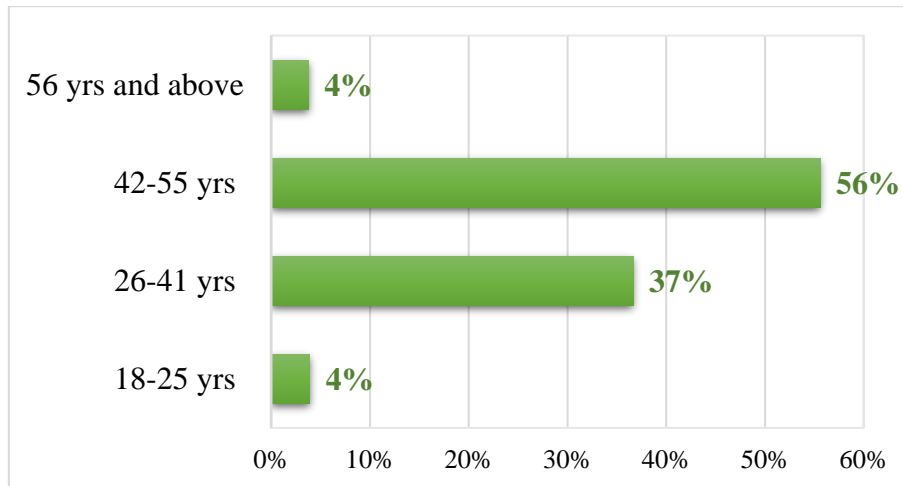
⁶ cf. Peter, Laurence J., and Hull, Raymond, *Peter Principle*. (London: Souvenir Press, 1994), 99-100.

⁷ Announcement of the Human Resources Department of the NCTA (2022).

⁸ Source: The authors' compilation based on the figures of the Human Resources Department of the NCTA (2022).

Nearly 70% of the staff are over 42 years old, and the share of young people is as few as 2.25%. This fact worries not only about the labour shortage that will soon become even more evident but also does not favour age and generational diversity that undermines sustainability. Just over 20% (3 644) of the NCTA workforce were employed as finance guard officers in 2022. The situation is similar if we look only at the age composition of the finance guards' profession. Also, according to the figures for the first quarter of 2022 provided by the Human Resources Department of the NCTA, the age distribution of finance guard officers was as follows (Figure 2).

Figure 2: The age distribution of finance guard officers at the NTCA⁹



The share of young people among the finance guard officers' staff is slightly higher than for the total workforce. Still, the share of people aged 42 and over is also close to 60% for the uniformed staff. Due to the specificity of the law enforcement assignments, performing finance guard officers (e.g. patrols, criminal investigations, etc.) may also cause significant difficulties. In the medium and long term, ageing staff will struggle to meet the fitness (mainly health and physical) requirements specified by the law for such positions. These staff will not be fit for a finance guard officer's position without meeting the prescribed fitness credentials.

Therefore, the problem is quite complex. The NTCA is an ageing organisation facing a constant staff shortage due to emigration, the elimination of vacant posts and recruitment freezes. Long-term staff retention is challenging due to the uncertainty caused by frequent changes. Like other public administrations and law enforcement agencies, the revenue authority is not attractive enough to young people starting their careers.

II. Methods

Of course, neither an exhaustive exploration of the causes of this complex research problem nor solutions to all its segments is the subject of our study. We aim to explore the career motivations, values and needs of Generation Z finance guard officer candidates who participated in the basic training assignments to identify the characteristics of the potential labour supply. We also aim to identify the factors that support the attractiveness and retention of the profession the most and those that act against the needs and expectations of the officer candidates based on the profession's expectations (the profession's service profile).¹⁰

⁹ Source: Human Resources Department of the NCTA (2022).

¹⁰ Adrienn Magasvári, *A pénzügyőri szolgálat empirikus vizsgálata az utánpótlás- és hivatáskutatások tükrében. Doktori értekezés.* (Budapest: Nemzeti Közzolgálati Egyetem, Közigazgatás-tudományi Doktori Iskola, 2022).

The job expectations of the Generation Z and career or job choice preferences are probably to differ from the opportunities and expectations of the finance officer profession in general. However, it is assumed that some Generation Z members consciously choose the finance guard profession and that factors of the profession are present in their career motivations and work values. It is hypothesised that the individual-profession fit is achieved for cadets of finance guard.

In our research, quantitative data collection was carried out by means of a questionnaire, as the questionnaire was the most accurate way to answer the research questions among the tools supporting quantitative research. According to Babbie, a questionnaire is a set of pre-designed questions used specifically to elicit information for analysis.¹¹ While Szabó considers ‘a good questionnaire is a measurement instrument that, firstly, encourages the respondent to answer the questions, secondly, maintains interest in the topic, and thirdly, reveals attitudes, opinions and positions on the topic in the most objective way possible, free from researcher influence.’¹² In the quantitative part of the research, we preferred online and self-completion questionnaires we supplemented with our measurement tool. The questionnaire was based on an international and national literature on career socialisation and the experience of other research on the same topic, using questions already used in other studies but also including questions from Super’s standardised Job Evaluation Test for one of the dimensions.¹³ The standardised questions reinforced the validity of the research results. Still, to meet the requirements of validity, the designed questionnaire items were also reviewed by expert staff (5 persons)¹⁴ and tested on the reference group (10 persons).¹⁵ The questionnaire was completed, structurally modified, and refined in terms of content based on the experience of the expert review and the test filling. It consisted of the following content elements.

Figure 3: Content of the questionnaire¹⁶

¹¹ Earl Babbie, *A társadalomtudományi kutatás gyakorlata*. (Budapest: Balassi Kiadó, 2008).

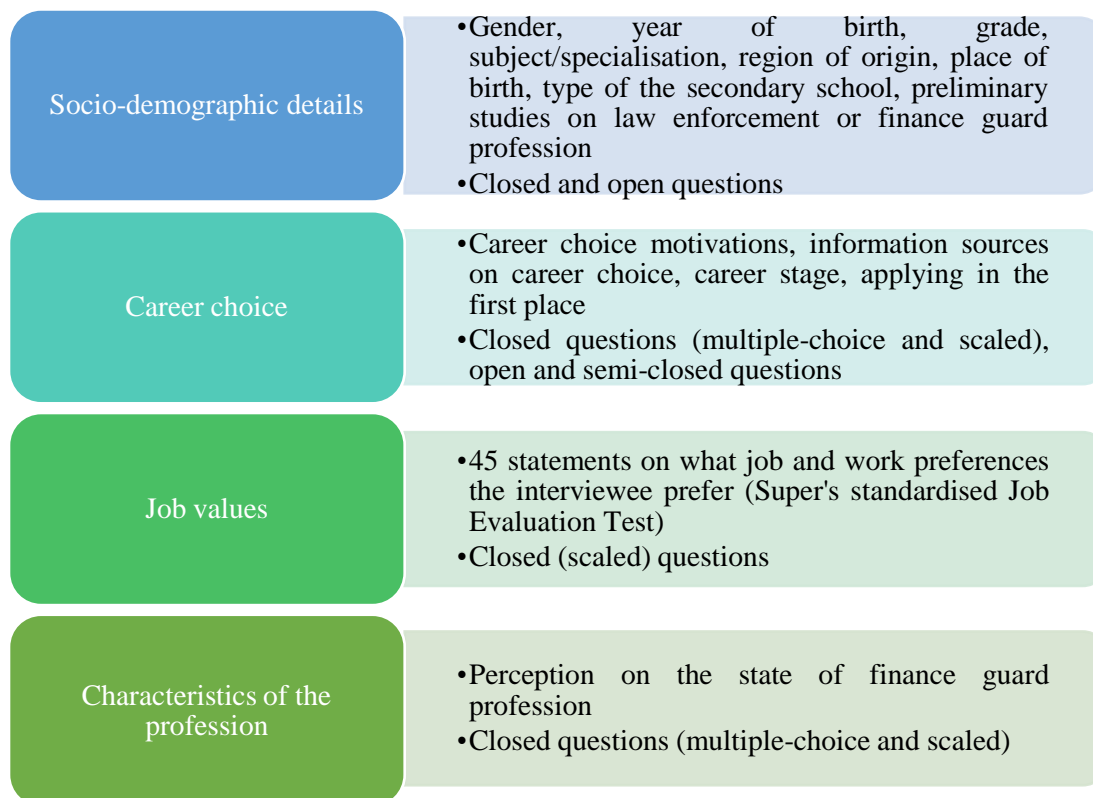
¹² Andrea Szabó, ‘A kérdőíves kérdezés gyakorlata’, in *Empirikus jogi kutatások. Paradigmák, módszertan, alkalmazási területek* ed. by András Jakab and Miklós Sebők, (Budapest: Osiris Kiadó, 2020), 275-300:276.

¹³ Ágnes Kovácsné Tóth, *Pályaválasztási motiváció értékrendi alapjai diplomás ápoló- és tanárképző főiskolai hallgatók körében. Doktori értekezés*. (Budapest: Semmelweis Egyetem Patológiai Tudományok Doktori Iskola, 2007).; Imre Boncz, *Kutatásmódszertani alapismeretek*. (Pécs: Pécsi Tudományegyetem Egészségtudományi Kar, 2015).

¹⁴ Zsuzsanna Veroszta, ‘A szakmai megalapozó munka lépései’ in: *KOHORSZ’ 18 – magyar születési kohorszvizsgálat. Módszertani leírás. A várandós kutatási szakasz előkészítése* ed. by Zsuzsanna Veroszta, (Budapest: KSH Népeségtudományi Kutatóintézet, 2018) 25-32.

¹⁵ Tünde Lengyelné Molnár and Judit Tóvári, *Kutatásmódszertan. Távközzétan tankönyv*. (Eger: Eszterházy Károly Főiskola Médiainformatica Intézet, 2001).; Edmond Girasek, *Rezidens orvosok szakterület-választási és vidéki munkavállalási motivációi. Doktori értekezés*. (Budapest: Semmelweis Egyetem Mentális Egészségtudományok Doktori Iskola, 2012).; Boncz, *Kutatásmódszertani alapismeretek*.

¹⁶ Magasvári (2021)



The survey involved a comparative questionnaire survey of 192 university students. Out of the 192 participants, 130 students of the Bachelor's programme in Customs and Finance and Tax and Financial Investigation of the FoLE LUPS (candidate finance guard officers), and 62 students of the Bachelor's or Master's programme in the Faculty of Political Science and International Studies (FPSIS) of LUPS; all were full-time students. The study group consisted of finance guard cadets, and the control group consisted of students of the FPSIS. The control group members were similar in age and generational characteristics to the participants in the study group. They studied at the same university but not in law enforcement sciences and were not committed to any profession or vocation by their choice of higher education institution. Including finance guard officer candidates in the research did not require a sampling procedure. Due to the size of the sample population (153 persons), their spatial concentration, and easy accessibility, a full-scale survey was conducted. Finally, 130 candidates completed the questionnaire, representing a response rate of almost 85%. The control group was selected by a non-probability sampling method, the so-called snowball approach. 62 control group individuals completed the questionnaire, which does not ensure representativeness, but the results allowed us to specify specific trends.

This paper focuses on analysing and evaluating issues related to career choice and the state of the finance profession.

III. Results and discussion

A Respondents' identification

The study group consisted of 64.62% male and 35.38% female. In contrast, the control group had a higher proportion of female respondents (women=61.29%, men=38.71%), suggesting that there are still more men than women choosing law enforcement careers, including the finance guard service. Finance guard cadets participate in a four-year-long study course, and most first-year students answered the questions. 44 out of 47 students completed the questionnaire,

resulting in a 93% response rate. As the number of years increased, the response rate varied inversely, starting with 88% (23/26) of second-year students, 82% (37/45) of third-year students and only 71% (26/35) of the fourth. Among the students of the specialisations of FPSIS, second and third-year students were the most active respondents (21 and 24, respectively). In contrast, around 10-10% of respondents (6 and 7 individuals) answered, and only 4 were from the fifth-year respondents. Candidate finance guard officers conducted their studies in two specialisations at the FoLE. From the Customs and Finance Guard specialisation, 54 students answered from 58, while 76 students from 95 responded from the Tax and Financial Investigation specialisation. Thus, 58.46% of the total tax and financial investigator study group responded, and 41.54% responded from the customs and finance guard officer specialisation.

(i) *Career choices*

The questions on career choice motivation mapping included 19 statements, and all respondents (n=192) were asked to rate on a 7-point Likert scale the extent to which each factor (1=not at all; 7=strongly) influenced their career choice (in their application to a degree programme/subject). The average scores for each statement are presented below, sorted out by subject area.

Figure 4: Average values of career choice motivations (n=192)¹⁷

¹⁷ Magasvári (2021)



The significant differences between the mean scores of each group led us to use analysis of variance to examine which factors showed significant differences between the mean scores. The factors below were found to be significantly different from the mean scores of the separate specialisations:

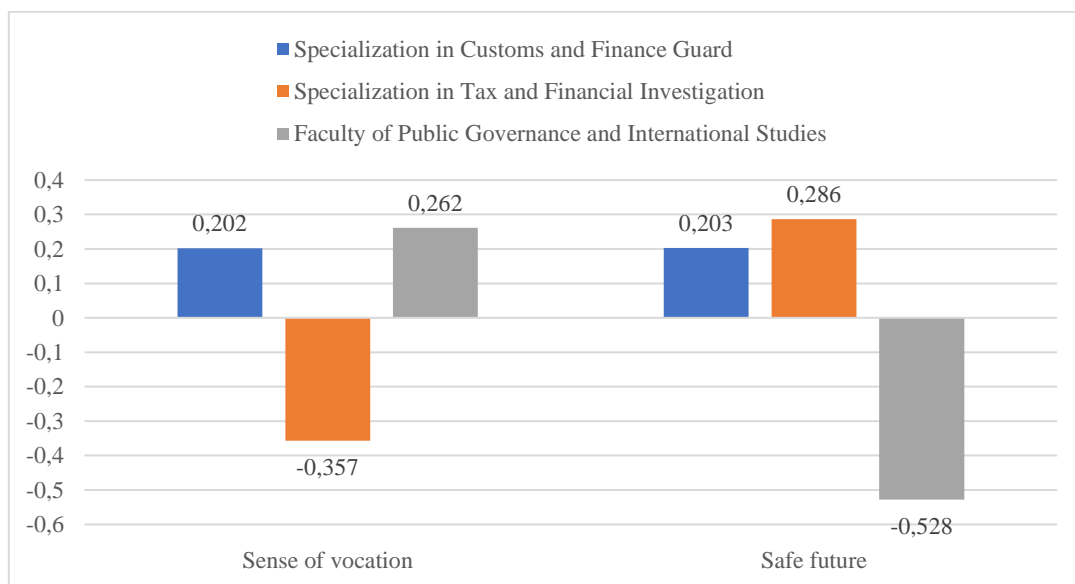
- I wanted to do this but decided out of a solid inner motivation.
- I felt I had the talent for it.
- I find it a diverse, interesting and exciting career.
- Because of the job security.
- The career opportunity attracted me.
- I was attracted by the additional rewards that come with the job.

A pairwise comparison was made between the specialisations on the above factors. The results of the Games-Howell Post-Hoc Test showed that the choice of career based on intrinsic motivation was most significant for students of Customs and Finance Guard (5.15). At the same time, this aspect had the most negligible influence on the choice of Tax and Financial Investigators (4, 20), with a significant difference between them. In contrast, the perception of FPSIS students (4.45) did not differ significantly from the average for Customs and Finance Guard and Tax and Financial Investigation students in this factor. For the chosen career path, it was mainly the Customs and Finance guard officer candidates who felt that they had the aptitude (5.43), which was almost identical to the FPSIS students (5.39) but significantly different from the Fiscal and Financial Investigators (4.76). For students of both Customs and Finance (6.35) and Tax and Financial Investigation (5.89), the fact that they consider their future profession to be diverse, engaging, and exciting was a particular factor in their decision to apply to higher education. It differs significantly from the FPSIS students (5.37). Tax and

financial investigators are most likely to have chosen their specialisation in the hope of a secure job (6.41). Still, this aspect is almost as crucial for Customs and Finance Guard respondents (6.24) compared to FPSIS students, who rated this factor significantly lower (4.97). The career prospects of having a degree are most attractive to Customs and Finance Guard officer candidates (5.94) and least attractive to FPSIS students (5.24), showing a significant difference between the two groups but no significant difference between the means of Tax and Financial Investigators (5.75) and either group. The benefits associated with the profession or specialisation are considered less important by the respondents regarding career choice. Still, the Fiscal and Financial Investigation Officer candidates rate it significantly higher (3.54) than the FPSIS respondents (2.50). The Customs and Finance Guard Officer candidates' rating does not differ considerably from the other two groups (3.11).

Five smaller dimensions were developed using factor analysis from the 19 motivational factors for career choice. However, only two factors had an internal consistency measure (Cronbach's alpha) above 0.7, i.e., acceptable. Of the two factors with a corresponding Cronbach's alpha, the first factor measures the degree of the respondent's sense of vocation, commitment, generous attitude and interest in the profession ('vocation awareness' factor), i.e. the extent to which this factor influenced the respondent's career choice. Tax and Financial Investigation students have significantly lower career expectations (-0.3570) than students in the Customs and Finance Guard (0.2019). The factor of a secure future is almost identical for the candidates of the Customs and Finance Guard (0.2031) and the Tax and Financial Investigation (0.2863), with no significant difference between them.

Figure 5: Trends in the scores of the factors 'sense of vocation' and 'secure future'¹⁸



Using Spearman's rank correlation coefficient, we examined the relationship between the grade of the respondent and the two factors (career awareness and secure future) and found that both career awareness ($\rho=-0.150$; $p=0.038$) and secure future ($\rho=-0.300$; $p<0.001$) are significantly negatively related to the grade of the respondent. It suggests that the higher the grade, the less motivated the respondent is by factors that still strongly determine their career choices, such as serving the community, a strong interest in and commitment to the profession, i.e. a sense of vocation, and a secure job and income package, career, or secure future.

¹⁸ Magasvári (2021)

(ii) *The status of the profession*

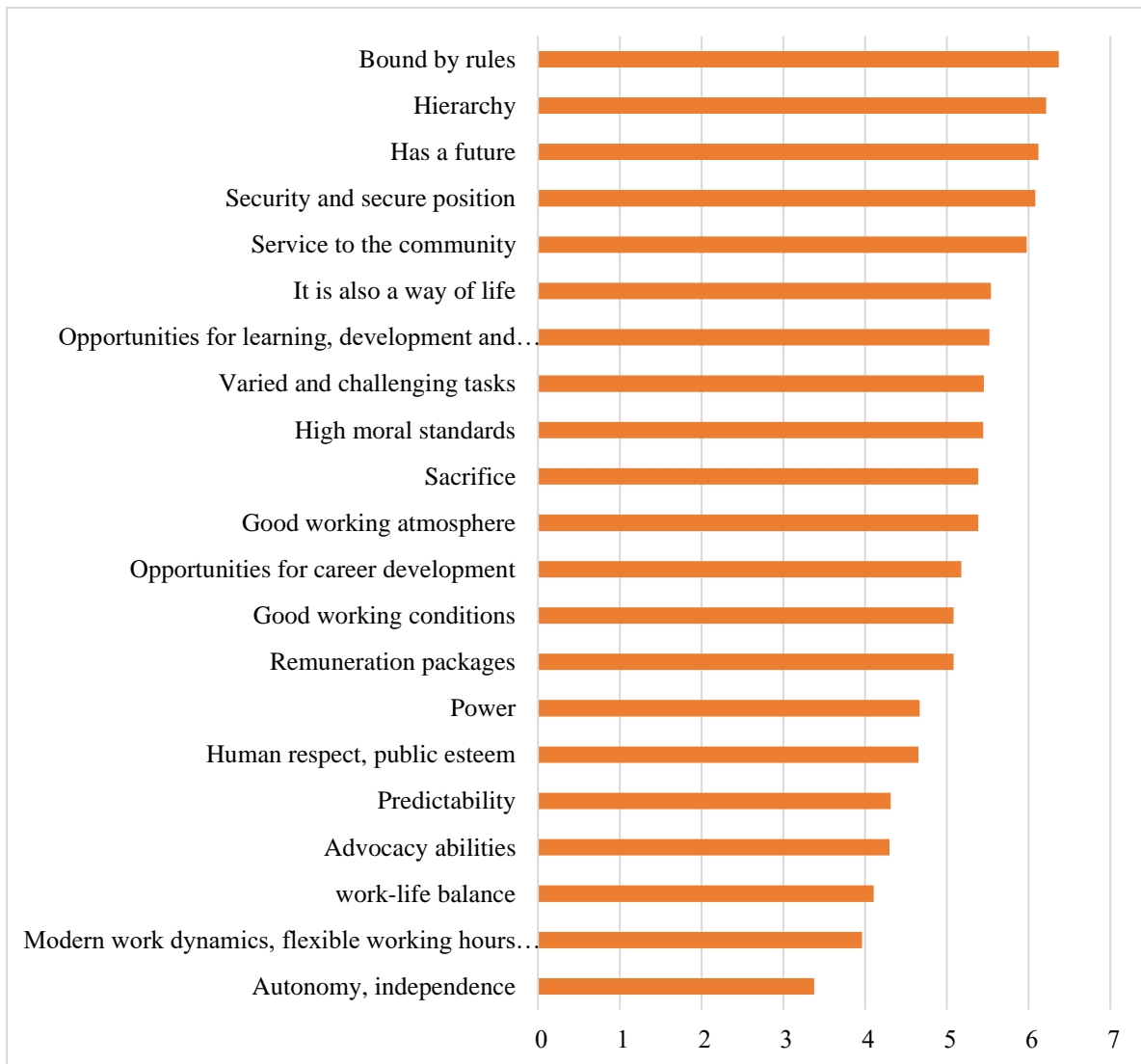
In 2022, Magasvári¹⁹ explored the criteria for the finance guard profession. On this basis, the finance guard profession has a specific societal function to protect the economic and financial security of the state. It carries out its social functions within the organisational framework and the limits of its powers and competencies laid down by regulations. It has public powers and a monopoly on using force if necessary to fulfil its societal function. Finance guard officer training is only available at Hungary's designated higher education institute, the LUPS. Trainees acquire professional and practical skills while completing university courses, and the beneficiary agency is always the NTCA. Sworn staff service is built on a solid moral and ethical basis. Like other law enforcement officers, finance guard service practitioners are undoubtedly responsible for the consequences of their decisions and behaviour. Despite their high standards and the ancient character of collecting taxes and customs duties, society does not recognise finance guard service in high regard because it remains often hidden from most of the community. Symbolic elements such as uniforms, ranks, oaths, and the use of specific language serve to identify with the culture of the profession and to belong to the particular group of practitioners. The service of the finance guards encourages an exemplary lifestyle. Still, it involves sacrifices and extra responsibilities that impact personal life and health, affecting family and friendships. A lifelong commitment to the service often distinguishes finance guard officers, and this is not considered a simple job but a profession.

The questions on the perception of the finance guard profession were targeted only to the respective members of the study group (n=130). We formulated 21 statements about the situation and characteristics of their future profession, of which the most characteristic for the profession of a finance guard officer, according to the respondents, were as follows: working according to rules, hierarchy, future, security, serving the community and lifestyle approach. The most considerable difference between the perceptions of the two educated professions is found in the following factors. Tax and financial investigators rated a security and secure position and sacrifice more highly (6.26; 5.67, respectively) than customs and finance guard students (5.83; 4.98, respectively). On the other hand, promotion and career development, respect and public esteem, work-life balance and modern work organisation, and flexible working hours were more characteristic of the profession of tax and financial investigators (5.01; 4.41; 3.72; 3.74) than of customs and finance guards (5.41; 5.00; 4.65; 4.28).

Figure 6: The perception of the profession of finance officer (n=130)²⁰

¹⁹ Magasvári, *A pénzügyőri szolgálat empirikus vizsgálata az utánpótlás- és hivatáskutatások tükrében. Doktori értekezés.*

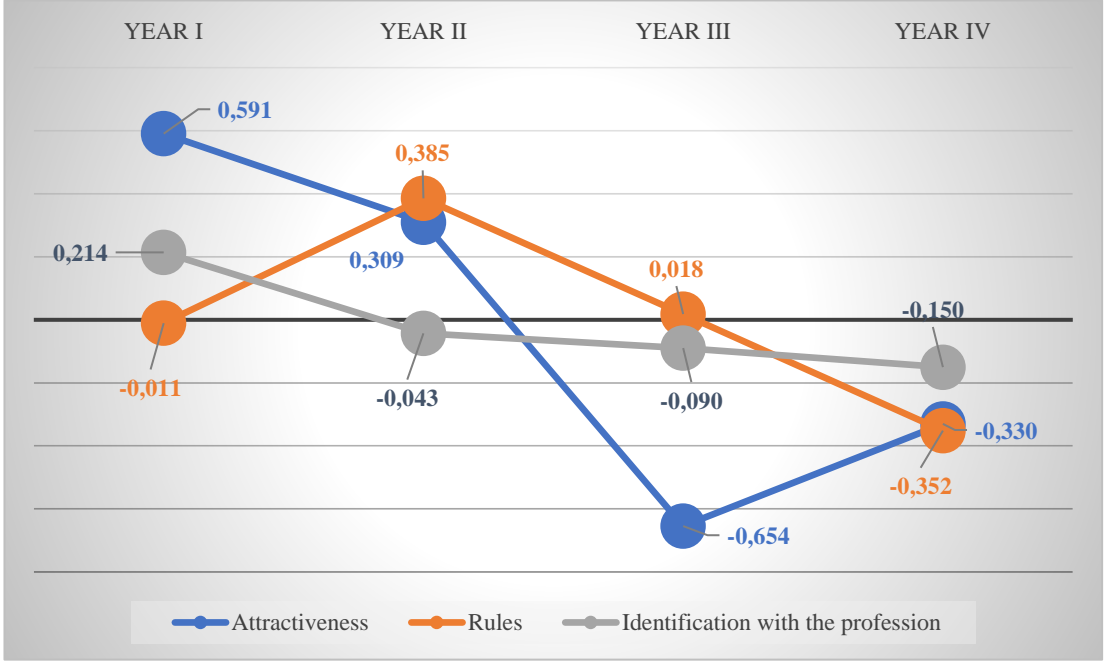
²⁰ Magasvári (2021)



Comparing the above results with the markers that define the profession of finance guards, the authors concluded that operating within a legal framework (rule-bound), societal purpose (serving the community), generosity (sacrifice), and strict moral values, a way of life or a lifelong commitment (security and future) are high on the scale. At the same time, power, autonomy, and social esteem are less likely to be considered elements of the profession. It reveals that the applicants know the main character that defines the finance guard profession. We then tried to group the 21 statements into groups using factor analysis to create dimensions. The final factor analysis was successful, producing three factors from 16 variables. The first factor measures the vocation's opportunities (income, career, appreciation, learning and development, security, working conditions, atmosphere) ('attractiveness'). The second focuses on rules, regulations, constraints and expectations ('rules'), while the last measures altruism and its impact on the way of life ('identification with the vocation'). The Cronbach's alpha index measuring internal consistency was at an adequate level for the first two factors (0.890 and 0.760), with no extremely low value for the third (0.673), close to an acceptable level, but the conclusions drawn from the calculations for this dimension should be treated with caution. Spearman's rank correlation coefficients were used to measure the correlation of grades with factors related to occupational status. The results show that the attractiveness factor erodes significantly yearly ($\rho = -0.468$; $p < 0.001$). As the years pass, students feel less and less that the opportunities that provide attractiveness for the profession are characteristics of their future

profession. There is no significant trend when comparing the rules across years ($\rho=-0.058$; $p=0.511$), i.e. students of all years perceive this factor as a characteristic of their future profession to a similar extent. Again, a negative (albeit weak) relationship was found for identification with the profession ($\rho=-0.174$; $p=0.049$). Year after year, students feel less and less that identification factors determine their future profession.

Figure 7: Trends in factors measuring the situation and characteristics of the future occupation in the four year groups ($n=130$)²¹



IV. Conclusion

Based on the results of the quantitative study, it is possible to identify the factors that are/may be attractive for Generation Z finance officer candidates and that may be a retention factor in the profession, as well as to identify the aspects that may hinder their choice of the profession of finance officer and their longer-term commitment to the profession. Table 1 summarises these factors.

²¹ Magasvári (2021)

Table 1: Motivating factors (attractiveness) and constraints to career choice and career retention of the officer candidates in the study group²²

Attractiveness	Constraints
Means-tested allowances to ensure a decent living for those starting out in their careers	Financial rewards do not encourage long-term retention
Security and predictability (organisational and status changes have negatively affected this)	Obligations, over-regulation
Opportunities for learning and development	Hierarchical, command-and-control system
Work that matches interests (mobility, excitement, uniforms, arms)	Influence of work on personal and family life, friendships
There is scope for diversity in terms of tasks, structure and geographical location, but this may be limited by the interests of the service	Careers are unpredictable and severely limited
Work atmosphere, social relations, teamwork	Lack of a modern working environment, modern working conditions and tools
Ideal of service, community benefit, less visible to the outside observer	Limited opportunities for atypical forms of work in finance guard positions

The first assumption was partially confirmed because the finance guard profession and the NTCA as an employer meet some of the characteristics and job preferences of Generation Z. The remuneration benefits that ensure relatively decent living for newcomers, the variety of work, the opportunities for learning and development, and the ability to work as part of a team are those aspects that can increase the attractiveness of the profession of a finance guard officer. However, the constraints and limitations of the finance guard service, the obligations to follow the rules, the strong impact on private life, the loyalty expectations of the organisation, and the lack of a career path put serious barriers between Generation Z and the profession of finance guard, and do not help with job orientation or retention.

Finance guard officer candidates consciously choose this profession. They are motivated by a strong sense of vocation (even more than those who become tax and financial investigators) and a desire for security. They want engaging, varied work that provides them with a predictable career path and decent living standards. They are aware of the specificities and expectations of their future profession. Still, their internal motivation decreases yearly, as does the profession's attractiveness and identification with the work.

The hypothesis formulated in the second part also becomes partially confirmed since the career choice of the finance guard officer candidates is indeed strongly influenced by such career characteristics as internal motivation, long-term commitment and the desire for a secure job, generosity from the employer, and interest in the profession, which are mainly dependent on the person who is in the profession. However, they also show some of the characteristics of Generation Z, who want diverse jobs performed in a team, provide relatively decent living standards, and support predictable careers. It is also worth noting that the occupational awareness factor is significantly more decisive for customs and finance guard students working in customs and excise administration and enforcement in the future and less for those in criminal investigation sectors.

²² Ibid.

Our research has revealed that some individuals and groups within each generation appreciate the profession's values, respect its traditions and are committed to its culture. They need to be found and more targeted with the right offer, which requires a new recruitment strategy and a credible employer brand. In addition, it is essential to develop an HR strategy that focuses on retention and recruitment objectives, pays attention to incentive schemes, a predictable career path, conditions that create the right working conditions, a workload that ensures a better work-life balance and a more efficient working schedule. Of course, a predictable and relatively stable legal and economic environment and a stable organisational and employment status are also important factors in retaining staff and their long-term commitment to a career in finance. The research results were presented during the Ludovika International Law Enforcement Research Symposium in Budapest on 26 October 2023.

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University Education and Training in Criminalistics and Forensic Sciences in Slovakia

Jozef Meteňko,¹Martin Laca²

The authors in this study analyze the scope and content, including concepts of education and training in criminalistic and forensic sciences at the universities in Slovakia. After short analyses of the education system, they focus on the actual state and expected development in the near time after accreditation. They point to the need for scientific, university-based use of actual knowledge and its content as a way of classical and modern criminalistics and forensic theory and practice-oriented educational processes. The future of a much wider application in criminalistic and forensic practice and research outputs should decide on the education of criminalistics. The basis for this analysis is research and pre-research probe in Slovakia in this area. Detailed processing of knowledge was carried out within the research in the project "Methods and procedures for work at the crime scene", oriented to the main pillars for the future of university education in criminalistic and forensic sciences in Slovakia.

Keywords: Criminalistics, forensic sciences, university education, training, research, study programs

I. Base for analysis

To solve the problem, we prefer several supporting points, which we use during the analysis and which in several parts formed the framework of our view of the problem with a focus on the state and expectations of university education and training area of Criminalistic and Forensic area in the Slovak Republic. They are open formulations that are based on our professional pedagogical and Criminalistic experience and are the result of a history of development criminalistics and forensic knowledge in Slovakia.

We did not pay attention to all influences, but only those that we think were affected in our investigation.³

Our society is significantly affected by the development of new processes/technologies applicable to the education process.⁴ They most significantly influence trends and current content in educational fields and study programs. The open possibilities of self-regulation of higher education institutions have been reduced by the accreditation process since the creation of the Slovak Republic. In addition to these, of course, there are also more subjectively influenced trends, such as interest modified by the real or assumed need for practice, the

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³ Meteňko, J., Meteňková, M., 2021. Pokroky v edukácii kriminalistiky a forenzných vied na Slovensku, In.: SUJA, M., BARTA, M., CEHLÁRIK, Ľ., *POKROKY V KRIMINALISTIKE 2021*, Akadémia Policajného zboru v Bratislave, 315 s., ISBN 978-80-8054-927-5, EAN 9788080549275, ss. 222 – 241. CD - ISBN 978-80-8054-928-2 ss. 219 – 238.

⁴ Ivančík, R., Nečas, P., 2023, Security and Defence are truly a Priority for the Member States of the European Union: Fact or Hoax? In.: *ENTREPRENEURSHIP AND SUSTAINABILITY. ISSUES* ISSN 2345-0282 (online) <http://jssidoi.org/jesi/> 2023 Volume 10 Number 3 (March), [http://doi.org/10.9770/jesi.2023.10.3\(6\)](http://doi.org/10.9770/jesi.2023.10.3(6))

previous awareness of participants in the educational process, but also fashion trends presenting modernity or attractiveness in the given field of education.⁵

Our point of view is concerned with the importance of those processes, especially in the field of criminalistics and partially also forensic sciences because the scope and content of knowledge, competencies, and skills that are needed in these two sectors is indeed exceedingly broad. The development of creativity, which should be so intense precisely at the basic and intermediate level of training is irreplaceable and even unattainable in the years of education. We encounter both in Slovakia at all levels of education - from elementary school to doctoral studies at universities... This trend is visible in all types of educational institutions, from private, to public to state, especially from secondary to university.

We perceive it as a surprise that already in the 2nd year of elementary school there is a mention of - dactyloscopy, as a method - the area of examining a person from the point of view of his identification... But when we evaluate the usefulness of this knowledge for future criminalists, we find that the logic of reasoning and its practice would be a more useful tool for the student's future. Even in this case, it turns out that the breadth of knowledge presented is not the quality of creativity.

A long-term part of the regulatory processes for the preparation and implementation of educational content in Slovakia is the process of accreditation of study programs - curricula, according to which teaching and training is implemented. Accredited study programs should guarantee homogeneity of content and scope throughout the Slovak Republic, they should be a control mechanism for applying the latest scientific and professional knowledge to the educational process.

The operation of the Accreditation Commission - the previous body of the control mechanism - was more adapted to the self-regulatory mechanism that operated in Slovakia. This mechanism was based on the structure of control mechanisms formed by experts from other universities, including nominations of student and self-governing bodies. In addition to compliance with the core of the study program, which had to be observed, the control also assessed the professional and scientific competence of teachers, the spatial and technical possibilities of education, and of course the previous results and applicability of graduates. Undeniably, these criteria are probably so limiting that even new control structures will not significantly change their context. Rather, we see the path from the Accreditation Commission to the accreditation body in an effort to subordinate the entire control process to the same administrative rules and an effort to take control mechanisms more into the hands of ministerial bodies, regardless of whose positive or less positive assumption it is. The criteria are changed "on the fly" and are still in development, so the academic community of most universities is waiting for news, which often has an administrative, not developmental, character.

Since the establishment of the Slovak Republic, the trend of self-regulation of the content and forms, or scope of educational processes at colleges and universities in the Slovak Republic has prevailed. The guarantee of modernity and science was and is guaranteed by the scientific capacities at each college or faculty, which directly influence the scope, content, quality, and outputs of the educational process. The positive side of any self-regulation is relative independence from "administrative control mechanisms", which often do not adequately cover variations in cognitive processes and their qualitative changes. Administratively conditioned mechanisms react belatedly to current stimuli for the development of scientifically based knowledge. That is why it is an advantage if the presentation of the content is guaranteed and implemented by leading research capacities in the relevant field.

On the other hand, self-regulation can lead to a one-sided orientation, but if the quality of the transfer of the latest scientific knowledge is neglected by the guarantor of the subject or study

⁵ Chovanec, M. 2021: *Ontogenetické teórie vo forennej psychológii*, Centrum polygrafických služieb, APZ, Bratislava, s. 112, 2021.

program, it can also lead to a significant decrease in the quality of education. This is also the reason for the long-term operation of the control mechanisms that we are investigating in the field of accreditation in Slovakia.

Powers on the accreditation of higher education institutions are currently delegated by the government to the Accreditation Body at the Ministry of Education. ⁶

Estimated trend:

1. The most prominent symptom of the trend is the reduction in the volume and thus the content of Criminalistic teaching at all systemically important educational institutions in Slovakia.
2. The trend mainly concerns the law and security faculties of public and private universities, secondary security schools, and partially also the Police Academy.
3. The process of reduction is most visible when comparing the phases of accreditation, which takes place approximately every 5 years.
4. The trend is currently visible at all universities.
5. Overall, it can be stated that the scope and content of the teaching of Criminalistic is reduced, and the relative increase in the scope of the teaching of Forensic Sciences is recognized in the biggest universities as important educational institutions.

II. Presentation of analyses

A *Criminalistics as a profiling subject*

(i) *Law faculties*

The process of the increase of university-educated lawyers is visible in all universities. In the long term, there is an observable reduction in content and scope, and at the same time, apparently, interest in education in the field of Criminalistic and forensic knowledge. In the past, well-known and preferred Criminalistic departments, institutes, and other forms of organization of scientific university Criminalistic teaching are long gone, historically the preference for the development of Criminalistic theory by criminalists with a legal orientation is probably also here. A comparison of the stages of accreditation, which takes place approximately every 5 years, shows a decline not only in the above-commented facts but also a reduction in the volume and content of Criminalistic at all law faculties in the Slovak Republic.

However, the same trend is currently visible in practically all universities where Criminalistic is taught. From full-time students in subjects usually in the past for 2 times 48 hours in 2 semesters to compulsory elective subjects, in only 36 hours in 1 semester, where all law faculties are heading in the current accreditation – with the 3 credits (ECTS).

Let's add to this that it is the full content of all Criminalistic, so if it is primarily perceived logically at law faculties - in the spirit of Gross broad concept ⁷, including investigation methodology and with a focus on Criminalistic-methodical teaching effects. The reduction is commented on by teachers and managers of law faculties, in the sense that students are not interested in learning Criminalistics.

After the accreditation, which is currently underway, all law faculties in Slovakia will only have compulsory elective courses in Criminalistic in the range of 36 hours of lectures, most often in

⁶ Meteňko, J., Meteňková, M., 2021. Pokroky v edukácii kriminalistiky a forenzných vied na Slovensku, In.: SUJA, M., BARTA, M., CEHLÁRIK, Ľ., *POKROKY V KRIMINALISTIKE 2021*, Akadémia Policajného zboru v Bratislave, 315 s., ISBN 978-80-8054-927-5, EAN 9788080549275, ss. 222 – 241. CD - ISBN 978-80-8054-928-2 ss. 219 – 238.

⁷ Gross, H., 1914 *Handbuch für Untersuchungsrichter als System der Kriminalistik*. II. Teil [Príručka pre vyšetrovujúcich sudcov ako systém kriminalistiky. II. časť]. - 6. umgearb. Auf. - München: J Schweitzer Verlag, 1914. - 1214 s.

the 2nd or 3rd semester of the master's degree. At one law faculty, 2 exercises with an experienced investigator - a former investigator are also proposed in the subject.

The content is the "whole" of Criminalistic, no forensic science, including theory, technique, tactics (especially methodology), and "methodic". This is practically impossible to implement in its entirety, and therefore only some selected topics are taught, usually the most popular ones. The number of students involved in one year of study is a maximum of 20% of the students involved per year from the entire year. The teaching of forensic medicine and psychology for lawyers is cumulated in one subject - as an optional subject. The participation is about 10 students from the year. Thus, even the representation of Forensic Sciences, whose current frequent "applications" from films and series attract viewers, is not a significant motivational element for students of law faculties to show interest in the field we are researching.

Graduates of law faculties themselves express their lack of interest, for example, that while the law - Criminal Procedural Law imposes duties and prohibitions on the investigation controlled by the prosecutor, an incorrect substantive procedure or an inaccurate result, guaranteed by Criminalistic, is not checked and corrected in practice - by anyone. It is enough to fulfill the formal and legal conditions of the law, on the other hand, the recommendations of the Criminalistic and Forensic science for the correct procedure and its result are not a criterion for the evaluation of the investigator.

(ii) Security faculties

The process of reducing the number of university-educated security officers or engineers in Criminalistic is also visible at other universities and colleges. Again, we can compare the stages of accreditation, which take place approximately every 5 years.

The reduction is not so fast as in the law faculties, but the teachers and managers at security faculties point to the information that they are not interested in teaching criminalistics knowledge due to the "requirements of security practice". The interest of students in these faculties is considerable. But reducing the content and range of lessons is also important here. The requirements for the addition of new subjects, especially of the humanitarian type - "international cooperation", "EU organization", "security management" or other similar ones, create pressure to reduce the number of hours of Criminalistics.⁸ The scope of teaching at the two-semester level implemented so far, with the possible addition of theoretical knowledge in the next semester, will probably not be sustainable here either. The prerequisite in this case is a maximum of 2 semesters, content focused on practical knowledge and partly training in some topics. In complex of 4 + 4 + 5 credits (ECTS).

After the accreditation, which is currently underway, all private and public except state faculties of higher education institutions in Slovakia, where criminalistics knowledge is taught, and at all law faculties in Slovakia, only compulsory electives will probably remain, most often in the 2nd or 3rd semester of study, usually in the years of master's studies. At one law faculty, 2 exercises with an experienced solver are also proposed in the subject.

(iii) Academy of the Police Force in Bratislava

After the accreditation, which is currently also taking place at the Academy of the Police Force in Bratislava - in another APZ, there should not be any significant changes in the scope or content of Criminalistics and Forensic Sciences education, as we analyzed them from the findings at other Slovak universities. At the only state college of security sciences (APZ), teaching of complete Criminalistics according to innovative concepts of Criminalistics theory without investigation methodic. The content of selected problems of the theory connected with criminalistic technique and the content of tactics is taught in the form of lectures and seminars, for both systemic parts of the content of Criminalistics in the scope of 48 hours per semester.

⁸ Ivančík, R. 2022. *Bezpečnosť. Teoreticko-metodologické východiská*. Plzeň: Vydavatelství a nakladatelství Aleš Čeněk, 2022. 240 s. ISBN 978-80-7380-873-0

Currently, both subjects are taught in the bachelor's degree in the sequence of the 2nd and 3rd years 4+4 credits (ECTS).. They are followed by the education of mandatory optional subjects in the scope of 36 hours of training and practice in both contents, i.e. Criminalistics technique and tactics – 3+3 credits (ECTS)..

Variant - depending on the need and occupancy of the hourly subsidy, there is a varied mandatory/mandatory optional representation of both practical subjects from technique and tactics. According to the proposed assumptions, the study program Security-legal protection of persons and property - which is currently also taught at APZ and is relatively uniformly set up for security studies in Slovakia - will remain in the content concept of Criminalistics at APZ, taught in the 2nd and 3rd year of the bachelor's study with 4 credits (ECTS) of this security study program intended primarily for future or active police and, or security officers.

In addition to the mentioned basic contents for Criminalistics education at APZ, there is a prepared, but unfortunately understaffed, subject Theory of criminalistics for students in the master's study of this study program 3 credits (ECTS). Its content is focused on the theoretical foundations of criminalistics - which are presented only in a very abbreviated form due to the lack of an hour subsidy at the beginning of the study, and at the same time, specific topics focused on the latest knowledge and applications in criminalistic are presented - primarily from technology. The reason for the very low participation of students it is primarily the fact that they have already mastered the practical applications of most of the topics and the credit subsidy does not motivate them to enroll in this subject at the end of their studies. Its contents include the theoretical foundations of Criminalistics: Development of criminalistics and criminalistics methods. Criminalistics systems, subject, object, methodology, and processes. Theoretical foundations of criminalistics research and investigation. Scientific foundations of criminalistics investigation and research. Processes in Criminalistics. Theory of criminalistics traces and trace carriers. Substance traces. Memory traces. Traces of fields. Signs of criminal traces and their investigation. Criminalistic examination methods and investigation procedures. Applications of forensic knowledge in police sciences.

Part of the enrichment of the content of the teaching of Criminalistics at APZ in this study program (Security-legal protection of persons and property), are optional subjects according to the interest and expected specialization of the student, where the following subjects are presented: Criminalistics examination and expertise – 3 credits (ECTS), 2 subjects devoted to theoretical and application questions of Interrogation and Reconnaissance with an hourly subsidy in the range of 24 hours 3+3 credits (ECTS).

In Forensic Sciences, we currently include Forensic Psychology in the scope of 36 hours 4 credits (ECTS), [4] as a compulsory subject, and similarly the combination of "Forensic Medicine and Forensic Psychiatry" in the scope of 48 hours – 4 credits (ECTS) - both as a compulsory subjects in the master's study. Currently, Forensic propedeutics is not being filled, and according to some proposals, a reduction of optional subjects is also expected.⁹

For the 3rd level of education – PhD study in the 2nd semester of study, we have available 48 hours of study of the subject "Methodology of criminalistic research" – 6 credits (ECTS), as a compulsory elective, but usually very decently filled, with topics:

Historical context of the development of criminalistic methods, subject, and system of criminalistic methods in the protection of persons and property¹⁰. Criminalistic identification and criminalistic investigation Criminalistics trace theory, digital traces¹¹ Criminalistics

⁹ Chovanec, M. 2021: *Ontogenetické teórie vo forenznej psychológii*, Centrum polygrafických služieb, APZ, Bratislava, s. 112, 2021.

¹⁰ Tremmel F., Fenyvesi Cs., Herke Cs., 2005 *Kriminalisztika. Tankönyv és Atlasz*. Dialóg-Campus Kiadó, Budapest-Pécs, 2005.

¹¹ Meteňko, J., a kol. 2004. *Kriminalistické metódy a možnosti kontroly sofistikovanej kriminality*. Bratislava 2004. Akadémia PZ SR v Bratislave. ISBN 80-8054-336-4, EAN 9788080543365. 356 s., ss. 26 – 120.

methods of examining a person's external signs - scientific foundations Criminalistic methods of examining the external signs of a person - peculiarities Criminalistic methods of examining external signs of objects - scientific foundations Criminalistic methods of investigating external signs of objects - peculiarities Criminalistic methods of investigating functional and dynamic properties - scientific foundations Criminalistic methods of investigating functional and dynamic properties – peculiarities Criminalistic methods of investigating the composition and structure of substances and objects - scientific foundations Criminalistic methods of investigating the composition and structure of substances and objects - peculiarities Investigating criminal traces by activation of consciousness - scientific basis Investigation of criminal traces by activation of consciousness - peculiarity Searching, securing and supplementing criminal traces - scientific basis Searching, securing and supplementing criminal traces - peculiarities Investigation of criminal traces by activation of consciousness by association - scientific basis Investigating criminal traces by activating consciousness by association - peculiarities Investigation of crime traces by experiment - scientific basis Investigating criminal traces by experiment - peculiarities Criminalistic versions - scientific foundations Criminalistic versions - peculiarities Criminalistic documentation - scientific foundations Criminalistic documentation – peculiarities.¹²

Education for "methodic" in the sense of the classical theory of criminalistic according to Gross¹³ is similar. Due to the above-mentioned conceptual changes in the scope and content of Criminalistic and Police Sciences, presented as Theory of Investigation and Theory of Evidence - in the scope of 48 hours – 4 credits (ECTS), per semester and the education of compulsory elective subjects in the scope of 36 hours of training and practical teaching – 3 credits (ECTS). It is assumed that it will always remain in the study program separately for bachelor's and master's studies. Education, however, in the spirit of innovation of the Criminalistics system with the inclusion of Criminal Investigation Methodology in the concept of Police Sciences, is conducted by a separate Department of Investigation.

In this study program, we see better education in basic theory as a problem, and we are preparing accreditation for the 3rd semester of the bachelor's study subject "Theory of Criminalistics" as an "introduction to Criminalistic".

Therefore, we are preparing changes for the new accreditation, which we will comment on below. In this study program, we are preparing the current accreditation for the 1st semester of the master's study of the subject "Forensic Sciences" - for better education in the basic aspects of all other forensic knowledge from the field of theoretical and practical forensic concepts that have not yet been interpreted in the scope of teaching at APZ - forensic engineering, accounting, State exam in Criminalistic on the end of bachelors study is honored by 5 credits (ECTS).

A peculiarity, and not only for the case analyzed below in the study at APZ, is the use of criminalistics knowledge also for the needs of another study program - Security and legal services in public administration. Conditionality and interrelationships of the activities of specialists, for which the above field of study prepares experts, require knowledge of cooperative and related activities that are used for their work activities. This is the main reason that the students of this study program in the second year of their bachelor's studies also encounter criminalistic content. For the sake of simplicity, we state that a similar scope and a more practical focus in supporting optional subjects can be expected even after accreditation. In the 38-hour Introduction to Criminalistics subject 4 credits (ECTS), which ends with an

¹² Similar as presented in: Žarković, M., Ivanović, Z., 2014 *Kriminalistička taktika*. 1. Ed., Beograd: Kriminalističko – policijska akademija, 2014. Beograd – Službeni glasnik, 366 str. ISBN 9788670202641., and Hejda, J. a kol. 2003 *Základy kriminalistiky a trestního práva*, VŠE v Praze, 2003, 1.

¹³ Gross, H., 1914 *Handbuch für Untersuchungsrichter als System der Kriminalistik*. II. Teil [Průručka pro vyšetřujících sudcov ako systém kriminalistiky. II. část]. - 6. umgearb. Auf. - München: J Schweitzer Verlag, 1914. - 1214 s.

exam, colleagues have a summarized overview of some - for them - essential topics: Introduction to Criminalistics. Criminalistics system. Methods of criminalistic. Criminalistic and Forensic trace. Theory of reflection. Digital traces. Criminalistic dactyloscopy. Criminalistic examination of a person's portrait. Criminalistic photography. Criminalistic examination of handwriting. Criminalistic investigation of language. Criminalistic examination of documents and papers. Criminalistic examination of typescript. Falsification and alteration of documents and deeds Expert and professional activity. Criminalistic chemistry. Criminal documentation. Inspection. Interrogation. Confrontation. Criminal version. Verification of termination on the spot. A criminalistic experiment. Reconnaissance. Criminal inspection. Reconstruction. Criminal records and collections. We assume that even in this case, the content will be preserved even after accreditation, and there is a potential extension for some practical applications.

B Forensic sciences as a profiling field ¹⁴

However, in a detailed analysis, this range and any changes caused by it do not cover the needs of security practice. When the volume of teaching in Forensic Sciences grows relatively, it is a relative state, because it often includes other specific educational processes (for example, in chemistry, biology, etc.), so-called mother sciences, and disciplines. As an example, we will use the study program Forensic and criminalistic chemistry, in the field of study 1420 Chemistry, prepared and implemented at Matej Bel University in Banská Bystrica. List of compulsory subjects by semester:

General chemistry 1/Z Chemical calculations 1 1/Z Mathematics 1 1/Z Human anatomy 1/Z Basics of forensic sciences 1/Z Inorganic chemistry 1 1/L Organic chemistry 1 1/L Fundamentals of physics 1/L Chemical calculations 2 1/L Basics of criminalistics 1/L Inorganic chemistry 2 2/Z Organic chemistry 2 2/Z Physical chemistry 1 2/Z Molecular biology and genetics 2/Z Physical chemistry 2 2/L Analytical chemistry 1 2/L Toxicology 2/L Chemistry of toxic substances 2/L Nuclear chemistry 3/Z Analytical chemistry 2 3/Z Theory of chemical bond 3/Z Biochemistry 1 3/Z Theoretical foundations of the analysis of toxic substances 3/Z Biochemistry 2 3/L Chemical structure 3/L Criminalistic methods 3/L, supplemented by 19 compulsory optional subjects, with content that really supports the content of the study program, showing the basic orientation of the content towards the "mother discipline" - chemistry.

It is logical in such cases since the saturation of teaching and training must have principled support in staffing by educators. A guarantee of high-quality content cannot be provided "to order" and the availability of guaranteeing educators is not feasible without a long-term orientation to those interested in the area of the relevant science. In Slovakia, scientific and research activity in Forensic Sciences is relatively poor, so concepts with a predominance of mother sciences, in this case chemistry, are logically introduced.

Despite the current development - probably the impossibility of continuing with the second stage of the program, this feat is unique in Slovakia at this stage of implementation. We noted a similar attempt in the past in Trnava, but it only reached the stage of preparing the content of the study program. An indisputably positive achievement in the history of Slovak Forensic Sciences, which will help saturate the lack of qualified experts, at least in the area of Forensic and Forensic Chemistry. From the point of view of the content of forensic and criminalistics practice, a less general focus on chemistry and supporting sciences and a more intensive supply of information on the content of criminalistics, or in the practical examination of related

¹⁴ In prepared study with abstract: METEŇKO, J., METEŇKOVÁ, M., (2023), Critical Analysis Criminalistics and Forensic Science Education - at Universities in Slovakia. *BOOK OF ABSTRACTS, Education, Research & Development, 14th International Conference, 23-26 August 2023*, Burgas, Bulgaria, www.sciencebg.net, <https://www.sciencebg.net/collection/download/ab-education2023.pdf>, p. 39

forensic disciplines, would be required already in this degree. Our previous thesis about the "relative increase" in the volume of the teaching of forensic disciplines conditioned by the substitution of knowledge from the parent discipline - in this case, chemistry, at the expense of criminalistics knowledge, was confirmed and, given the established lack of qualified educators for many forensic branches, will continue to apply.

III. Results and discussion – as a perspective

A Trends in Accreditation Process and Other Limitations

Since we have briefly covered the trend estimation for study programs focused on law, as well as for security-focused programs at other types of universities, in the relevant parts of the work, which we focused on the researched concepts of criminalistic and forensic science education, we can state that the hypotheses in all items 1-5 are confirmed. The break in scope and content is also connected with the accreditation process and its development, as the staffing of quality guaranteeing personalities of professors and docents is very narrow and the previously accepted coverage through related departments will be a problem. Of course, the estimate will only be able to be confirmed after the finalization of the current accreditation processes and the comparison of their consequences in the individual groups of universities and colleges involved. From the perspective of the development of Criminalistic and Forensic Sciences in Slovakia, we see a problem in a sufficiently wide and high-quality scope of education for specialists who work primarily in the field of Criminalistics, including investigation, we tend to call this group of expert criminalists. For the needs of such education, we have been accredited for more than 10 years with a special study program "Criminalistic and Criminology in Security Activities" for all 3 levels of higher education. But from our point of view, formal problems prevent opening the subject to the needs of criminalists. Due to the fact that we were principally involved in the creation of this field of study and the corresponding study program, we would like to briefly describe its content and concept if possible. Criminalistic and Criminology is a field of study (hereinafter only ŠO as field of study) from the system of study fields, administered by the Ministry of Education of the Slovak Republic, as a field of knowledge (§ 50 paragraph 1, Act No. 131/2002, on universities and on the amendment and supplementation of certain laws as amended by later regulations, in which the graduate of the study program acquires the professional ability and competence to perform his or her original profession or prepares to continue further university studies.

B Academy of the Police Force in Bratislava – long term expected future: Study field of Criminalistics and Criminology / 8. 3. 4 (Criminalistic and Criminology).¹⁵

Degrees of higher education in which the major is studied and the standard length of study programs for these degrees of higher education: The field of study Criminalistic and Criminology can be studied in: - the first degree of university studies (B.C.) with a standard length of 3 years in the internal form of study and 4 years in the external form of study, - the second degree of university studies (Mgr.) with a standard length of 2 years in the internal form of study and 3 years in the external form of study, - the third degree of university studies (PhD.) with a standard length of study of 3 years in the internal form or 4 years in the external form of study.

¹⁵ Meteňko, J., Meteňková, M., 2021. Pokroky v edukácii kriminalistiky a forenzných vied na Slovensku, In.: SUJA, M., BARTA, M., CEHLÁRIK, E., *POKROKY V KRIMINALISTIKE 2021*, Akadémia Policajného zboru v Bratislave, 315 s., ISBN 978-80-8054-927-5, EAN 9788080549275, ss. 222 – 241. CD - ISBN 978-80-8054-928-2 ss. 219 – 238.

The reasoning for the need: Ensuring the education of security service workers in the field of Criminalistic and Criminology is necessary for the protection of society from negative anti-social phenomena, from various types of criminal activity, especially from organized crime as well as from terrorism. The most important parts of the security structure can no longer be secured by substitutes in the level and content of knowledge. The long-term security situation in the Slovak Republic, Europe, and the world requires university-educated professionals who will be ready and able to effectively manage increasingly complex and detailed criminalistic and preventive systems in the fight against criminals in the control of the most serious types of crime, organized crime or terrorism. The need is expressed by a social order for the qualification of experts and managers in security services. Criminalistics and criminological knowledge is used by state and public law institutions and organizations, which today represent a separate field, characterized as security services for the population. The management of these institutions and organizations requires the training of qualified specialists and managers who have mastered not only the principles and methods of security management but especially the specific application of their Criminalistic and criminological needs. The need for correction of these procedures and methods, and implications of the latest knowledge, which cannot be realized only by taking knowledge from proven sources as it was until now, is shown.

Similar fields of study abroad: ¹⁶

- Police Academy of the Czech Republic, Prague – Police Management and Criminalistics,
- Tomas Bata University, Zlín – Security technologies, systems and management,
- Ludovika University of Public Service in Budapest, Hungary – Faculty of Law Enforcement,
- Technical University of Ostrava, Faculty of Safety Engineering – Fire Protection and Industrial Safety,
- Academia, Universita Beograd, Serbia – Criminalistic, criminology, investigation,
- Volgograd Academy – Criminalistic and forensic expertise,
- Mikolas Romarius University, Vilnius Republic of Lithuania,
- University Southampton Great Britain – Criminology
- Krakowska szkola wyzsza, Krakow – Zarzadzanie bezpieczenstwem,
- Akademia wychowania Fizycznego w Katowice – edukacja obrona,
- Université de Lausanne / EPFL - Lausanne Polytechnic – Forensic Sciences, Identification, Traceology and Criminal Analysis, Criminal Sciences and Law.

Definition of related fields of study and differences between them:

- Protection of people and property
- Security public-administrative services
- Rescue services
- Civil security.

Graduates of the study field of Criminalistic and Criminology are eligible to perform the following professions according to the level of study achieved:

1st degree (B.Sc.) - security worker-specialist for work at the scene of the crime, investigation and preliminary criminal investigation, or simple criminological analyses and the use of their results in an organization that provides services mainly in the protection of persons and property, - manager and specialist at the basic level of management in the system of criminalistic or criminological activities of the police and security services. A graduate of the first degree of study masters the issue of managing basic institutional security structures and the security systems used in them for the use of criminalistic and criminological knowledge,

¹⁶ Item.

has basic knowledge in the field of criminalistic, forensic, and criminological activities, technical means, preventive methods, search and seizure procedures and detailed legislation, which security organizations can apply in practice.

2nd degree (Mgr.) - a manager at middle and higher level of management in the state administration, in the system of the police and security organizations providing services in the field of criminalistic, forensic sciences or criminology, - independent worker, specialist - expert of state and non-state organizations providing professional, expert and expert activity in the fields of criminalistic, forensic sciences or criminology for the comprehensive assessment of violations and threats to systems in the protection of the safety of persons and property, their causes and remedial options. A graduate of the second degree will acquire the necessary knowledge in the field of legal regulation, system analysis of pre-defined and undefined criminalistic objects or criminological systems, and their design and management. He masters most of the analytical methods of assessment and examination of selected criminalistic and forensic objects, methods of projecting criminalistic or criminological activities of security systems, knows how to manage specialized work teams and coordinate their activities, and ensures control within security systems. He has the skills and abilities to creatively analyze criminalistic situations or criminological situations and project appropriate solutions for their recognition and regulation. He can qualitatively assess and evaluate solutions from the point of view of quality guarantee and support of legal, technical, and economic security of criminalistic or criminological activities. A graduate of the second degree has the ability to prepare and manage the activities of security investigation, search, and monitoring teams even in emergency situations, applying the principles of the theory of criminalistics or criminology, in the role of the leader of the implementation team. Based on a creative approach, he can analyze criminalistic and criminological factors of the security situation in the area of conception, analytical activity, organization, control, and securing of these activities and propose optimal solutions aimed at ensuring the effective protection of persons and property.

3rd degree (PhD.) - management and analytical worker at the top level of security management in the Police Force and in organizations providing security services in public administration, with a focus on criminalistics or criminology - research and scientific worker or university teacher in the field of criminalistics, forensic sciences or criminology. A graduate of the third level of study masters scientific methods and procedures in the field of Criminalistic and criminology, in particular, the investigation and evaluation of various specific and non-specific influences on the overall level of application of knowledge of criminalistic or criminology, scientific research and brings new knowledge and approaches to securing, searching and investigating criminalistics objects, or criminological situations, etc. On the basis of scientific methods of knowledge and research, it proposes conceptual and systemic solutions for the application of the knowledge of criminalistic or criminology. It applies a systemic approach in solving the tasks of the security of the state, society, persons, and property.

(i) *Content of the study field Criminalistic and Criminology:*¹⁷

A graduate of the first degree can analyze problems and situations that arise in various areas of application of Criminalistic and criminology knowledge, design parts of systems, ways of solving their crisis situations, as well as entire systems so that they meet the requirements of systematicity and is capable of applying them in an organizational structure dealing with the mentioned areas. A graduate of the first degree of higher education in the field of Criminalistic and criminology will acquire the theoretical knowledge and practical skills necessary to master

¹⁷ Content concentrate in: Tremmel F., Fenyvesi Cs., Herke Cs., 2005 *Kriminalisztika. Tankönyv és Atlasz*. Dialóg-Campus Kiadó, Budapest-Pécs, 2005., and Krajník, V, a kol. 2002 *Kriminalistika*. 1.vyd. APZ v Bratislave. Bratislava 2002. ISBN 80-8054-254-6, including: Šimovček, I., 2000 *Teória kriminalistiky*. - Bratislava: IURA EDITION, 2000. - 157 s.

a profession in the field of security services. He is able to independently perform managerial functions at lower levels of management and specialist functions at middle levels of management. He meets the requirements for professional competence according to the legislation of the Slovak Republic and according to the European Vocational Qualifications for Basic Guarding. Graduates are employed in state administration and the public sector. Can implement knowledge of criminalistics or criminology in the system of individual organizations, even in extraordinary situations; has the necessary knowledge of the theory of criminalistics, forensic sciences, and criminology, the basics of the law, the interpretation, and application of this knowledge in the activities of individual security services in the detection and clarification of criminal activity. The graduate will acquire theoretical knowledge and knowledge to continue in second-level university studies. Theoretical knowledge of the first degree of the study field of Criminalistic and Criminology: - acquires and understands in detail essential information, terms, principles, legal, natural science, social, humanitarian, and technical theories related to the performance of criminalistic or criminological activities in the security services - acquires the knowledge necessary to understand the structure and functional links of systems of criminalistic or criminological activities in security services - acquires the theoretical knowledge necessary for the performance of basic managerial functions in the management of forensic teams or the implementation of preventive criminological activities - knows how to choose appropriate criminalistic or criminological procedures, methods and the method of their application in the activity of security services, using theoretical and practical experience for their application. Practical abilities and skills required for the 1st degree - specify, propose and implement individual ways of applying the methods of criminalistic or criminology to ensure the safety of persons and their property, including all their legitimate rights and interests - specify, propose and apply the procedures of criminalistic or criminology methods, especially in the search, preliminary investigation, securing and protection of criminalistic or criminologically significant objects of interest - evaluate the available systems of criminalistic or criminology procedures based on standard and non-standard requirements for the application of said systems - assess the basic economic aspects of the methods of criminalistic or criminology, use their analyzes especially for the needs of their procurement and the procurement of technical means - apply requirements and offers to the legal system when creating a system to ensure the safety of people and their property - effectively manage the system of execution of procedures at the scene of the crime, related to ensuring the safety of persons and their property carried out by security organizations and institutions - carry out an inspection of the system of application of criminalistic or criminology methods, eliminate its shortcomings and change the system as necessary - effectively manage work teams and organize cooperation with entities participating in ensuring the safety of persons and their property, especially during investigations and criminalistic or criminological investigations, - acquires the necessary practical skills for obtaining the professional competence to perform the profession of searching for and securing individual types of traces in criminalistic technical activities of all security services according to the legislation of the Slovak Republic and EU requirements. Additional knowledge, abilities and skills (1st degree) A graduate of the field study of Criminalistic and Criminology in the first degree can: - type, search, assess, secure all types of criminalistic and forensic traces and criminalistic significant objects, - to present to individual categories of persons evidentiary, technical and organizational problems of searching, securing and preliminary investigation of all significant objects of criminalistic or criminology, - clearly and succinctly express qualitative and quantitative problems of search, preliminary investigation, securing and distribution of criminalistic traces and their carriers, or criminalistic objects of investigation, - effectively expand and deepen your knowledge of the field and continue your professional special development, - manage the activities of a small work team at the scene of the crime and in the area of performance of criminalistic or

criminological methods, - organize and manage professional training activities in the specified area, - obtain, process, and use information necessary for the performance of the profession. Main topics of the knowledge core of the study field (1st degree): - knowledge of Criminalistic and criminology for the legal basis of the security of persons and property in the Slovak Republic and in EU countries, - methods and procedures for searching, preliminary investigation, securing, transporting and archiving criminalistic and forensic traces and other significant objects - natural science, technical, social and humanitarian nature and technical aspects of the application of criminalistic or criminological systems, - application of criminalistic or criminological systems to ensure the safety of persons and property, - basics of managing criminalistic or criminological teams, - documentation activities and information logistics for the specific needs of security services, - technical support of security services, - professional ethics, psychology and sociology, penology, - final thesis - state exam (Bc).

(ii) Content for the second-grade

A graduate of the second degree of university studies in the field of Criminalistics and Criminology will acquire detailed theoretical knowledge and practical skills necessary to develop the abilities of their creative application in the performance of a profession in the sphere of security services. The graduate can analyze criminalistic objects and criminological states and situations in the field of security and its violations. He can independently process conceptual proposals for solving malfunctions in the entire system of criminalistic or criminological situations and its individual elements. He can independently process expert opinions and expert statements in defined sectors. The graduate acquires theoretical knowledge in the field of application of knowledge of Criminalistic and criminology to support the safety, and protection of persons and property, especially follow-up and preventive measures. He will develop intellectual abilities, practical skills, and personal qualities that will enable him to independently prepare and implement professional and expert, and specialized criminalistic or criminological investigations, as well as projects and take responsibility for their complex solution also at the national and international level. The graduate is able to obtain and analyze criminalistic or criminological information from the security environment, perform risk and relational analyzes and design corresponding parts of security systems, and propose and adopt appropriate solutions to ensure the protection of persons and property even in emergency situations. He is able to lead and manage analytical and executive teams even in the most complex cases of crime scene work and other criminalistic or complex criminological tasks. He can adopt complex solutions to ensure security from the point of view of criminalistic or criminology. The graduate will acquire knowledge in the field of theory and practice of criminalistic or criminology, enabling him to manage teams of workers in this field, independently lead specific security actions, and take responsibility for the correctness of their solution. A graduate of the department can effectively manage the activities of organizations and professional work teams at the middle and highest level of management of criminalistic or criminological activities, organize cooperation and coordinate activities with all cooperating entities. A graduate of the field of study of Criminalistics and Criminology has the necessary range of knowledge from the theory and application of natural, technical, social, and humanitarian sciences, including law and security, for the successful performance of tasks in security systems, especially in the area of protecting the rights of persons and their property. A graduate of the level masters the system and methodology of creating intentions and concepts of criminalistic and criminological activities, especially for the needs of security services, and has the necessary knowledge about the creation of their organizational structures, methods, and forms of their work in accordance with forecasts of the development of the security situation. Can apply acquired knowledge in the implementation of international cooperation and fulfillment of tasks in accordance with the requirements of supranational and international bodies and organizations. The core of his knowledge includes: - the theory of criminalistic

traces and criminalistic investigation and methods of criminological investigation, - the theory of Criminalistic and criminological expert activities and the ability to apply the system of criminalistic knowledge in the process of clarifying and documenting criminal activity, - knowledge of criminology with the ability to create conceptual plans for crime control, implementation of systems of preventive measures, especially in the field of organized crime, - criminalistic and criminological systems, institutional and organizational structures, used technical systems and work organization in the Slovak Republic and the EU, functions and mutual relations in ensuring criminalistic and criminological activities, - legal knowledge directed at the graduate's ability to use criminalistic and criminological knowledge, - management of criminalistic and criminological systems (managerial functions, decision-making processes, personnel management, value management, management information systems), - knowledge of the management of criminalistic and criminological activities, their identification, analysis of variant solutions with consideration of the priority of risks, their evaluation, - theory and practice of police and security services, theory of detection, investigation and proof of criminal activity, - methods and means of implementing conceptual intentions and measures in the activities of a manager and specialist. - technical systems and means of criminalistic and criminological activities and the ability to use them in fulfilling the tasks of the security services and propose measures for their modernization, - Diploma thesis - a specific solution to a problem in the field of criminalistic or criminology resulting in conceptual measures of the solved problem.

(iii) Content for third-grade

A graduate of the study field "Criminalistic and Criminology" of the third degree of higher education has a comprehensive knowledge of crime as a collective socio-legal phenomenon, the possibilities of its control, and its prevention. It controls the methods of obtaining, securing, evaluating and using criminalistic traces and criminalistic identification. He also has knowledge of natural, technical, humanitarian, and social study fields, obtained by combining the knowledge of study fields. The graduate masters scientific research methods and is able to formulate a scientific problem, process a project, conduct scientific research, and present research results. The graduate controls and competently uses extensive knowledge from criminalistic, criminological, expert, and expert activities. He is able to apply a systemic approach with an emphasis on theoretical and empirical research methods and techniques, to optimally transform scientific knowledge of police and security theory, criminalistic, forensic sciences, and criminology into police and security practice. It will be applied not only in the field of expert, criminalistic and expert activities, criminalistic and preventive activities, in the drafting of criminal law and related standards, but also for activities in the sphere of education, science, and research. The scientific part of the study field "Criminalistic Studies and Criminology" consists of the student's individual scientific work or his active participation in scientific teams. He independently develops a project a research task, which forms the basis of his final (dissertation) work. It uses empirical and theoretical methods to obtain, systematize and interpret original knowledge about crime, its prevention and the securing and identification of criminalistic traces, methods of their investigation, and its interpretation. The results of scientific activities are presented at domestic and international scientific-theoretical events and in the form of scientific publication works. Doctoral students in both full-time and part-time study demonstrate appropriate activities in direct pedagogical activity in the teaching process as well as in supervising the final theses of bachelor's students. A graduate of the third degree of higher education prepares a dissertation in which he demonstrates the ability to independently acquire theoretical and practical knowledge based on the current state of scientific knowledge and, in particular, demonstrates his own contribution, which is the result of his scientific research and independent creative activity. During the defense of the

dissertation, he presents the results of his own research work and demonstrates the ability of independent scientific work in the field of study.

IV. Conclusion

Concerning the ongoing accreditation as unknown variations of the influence on the education process, which we outlined in the introductory parts, it is very difficult to estimate the state that will be here in the next 5-6 years. It depends a lot on the personnel substrate that criminalistic currently has and will have in the near future in the practical and theoretical personal substrate of its enforcement.

In our opinion, the limiting factor is and will be new technologies and, on a theoretical level, with the theory of criminalistic traces, theory of identification, and theory of criminalistics examination as a homogeneous theory, including the theory of memory traces, and especially digital traces. For the current and certainly, for the future of Criminalistic, the limiting factor will definitely be the handling of the problem of new technologies and their related application variations, which are not directly perceived as a criminal offense, but without their application, such an illegal situation would not even arise. Misunderstanding of this situation currently leads to Criminalistics lagging behind Forensic Sciences in some areas, and even to the abdication of the position that Criminalistics had in the past.

On the other hand, it is precisely new and unused or unknown technologies as a means or goal of an activity that often raise doubts as to whether the action of a criminal is.

The absence of corresponding provisions in criminal law raises and may raise doubts about the criminality of such a procedure, or about the need and possibility of otherwise sanctioning such activity. Knowledge of socially unacceptable processes related to the misuse of communication and information technologies has been a subject of criminalistic for a long time.¹⁸ In many countries, often under the strong influence of English-speaking IT experts, it is combined with a forensic approach, since, according to several of our criminalists, "criminalistic does not have its own methods of investigating traces related to technologies" KaI. Unfortunately, even some Slovak sources come close to such an assumption.¹⁹ In our opinion, this "non-existence of own criminalistics methods" was primarily related to a theoretical and practical deficiency - failure to process knowledge about the existence of a digital trace.

The development of modern human society is currently based on the use of knowledge and new technologies. Although it presupposes automatic, but a professionally and scientifically based processing of data and information that penetrates everywhere. Currently, there is practically no branch of human activity where we would not encounter new knowledge and its applications. The near future will be characterized by greater and deeper integration of technologies with other professional activities.²⁰ Mastering these processes without the ability to apply new knowledge at a scientific level is not and will not be possible even in criminalistic, as well as in other areas and branches of human knowledge.²¹ Trying to manage the increase in volume, variability, and quality of knowledge development without the necessary level of university education is neither possible nor conceivable. The scientific knowledge of criminalistics,

¹⁸ Meteňko, J., a kol. 2004. *Kriminalistické metódy a možnosti kontroly sofistikovanej kriminality*. Bratislava 2004. Akadémia PZ SR v Bratislave. ISBN 80-8054-336-4, EAN 9788080543365. 356 s., ss. 26 – 120.

¹⁹ Krajník, V, a kol. 2002 *Kriminalistika*. 1.vyd. APZ v Bratislave. Bratislava 2002. ISBN 80-8054-254-6. or: [KURILOVSKÁ, L.](#), [SVOBODA, I.](#), [BEŇUŠ, R.](#), [KRAJNÍKOVÁ, M.](#), [MASNICOVÁ, S.](#), [SAMEK, M.](#), [ŠIŠULÁK, S.](#); *Kriminalistika*. 1. vyd. - Bratislava: [Akadémia Policajného zboru, 2017](#). - 431 s. ISBN 978-80-8054-724-0.

²⁰ Meteňko, J., a kol. 2004. *Kriminalistické metódy a možnosti kontroly sofistikovanej kriminality*. Bratislava 2004. Akadémia PZ SR v Bratislave. ISBN 80-8054-336-4, EAN 9788080543365. 356 s., ss. 26 – 120.

²¹ Ivančík, R. 2022. *Bezpečnosť. Teoreticko-metodologické východiská*. Plzeň: Vydavatelství a nakladatelství Aleš Čeněk, 2022. 240 s. ISBN 978-80-7380-873-0

forensic science, or police sciences is often considered to be easily manageable even without the necessary university education due to their application level – Criminalistics and the other named branches are often referred to as practical sciences. For this reason, there is also an observable trend in Slovakia of those who decides on the saturation of the educational level in these areas, as part of the "rationalization of professional training", to reach for simpler, accelerated, and shortened forms of education and training, instead of thorough lifelong training. This is then reflected in the preference for courses and short-term forms of training "for a specific need", before higher education and training in the relevant level of higher education.

The second registered trend is a change in the proportionality of the relationship between related activities and the position in the cognitive process of criminal investigation.²² The historically preferred relationship between Criminalistic and criminal procedural law, reflected for example in Professor Solnař's statement: "Criminal science is the handmaiden of criminal procedural law", has long been the preferred approach of legal authorities who have significantly participated in the development of criminalistic. Currently, such an approach can also be observed in the concepts of investigative and criminal procedural practice in relation to the importance and necessity of knowledge of criminalistic and forensic sciences in relation to criminal law in the investigation process.²³ Due to the increase in the importance of the formal level of the investigation process, the fact that if there is a formal error in the evidence process, the entire investigation process is thwarted. Regardless of the quality of the content level of knowledge in evidence - which is provided by criminalistic and forensic sciences in the investigation. This is quite often also the reason they presented in their reactions to the importance and need of preferring the criminal-procedural training of investigators over criminalistic and forensic training.²⁴ This assumption leads to a significant decrease in interest in the study of criminalistic among subscribers of the educational process, as a content source.

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²² Chovanec, M. 2021: *Ontogenetické teórie vo forenznej psychológii*, Centrum polygrafických služieb, APZ, Bratislava, s. 112, 2021.

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EU Support to Strengthen Border Security in the Middle East, North Africa Region

Gábor Németh¹

The Middle East and North Africa (MENA) is a region suffering from various crises. Wars, civil wars, collapsed state administration, lack of public security, failed law and order systems generate different international security threats such as terrorism, weapon smuggling, trafficking of human beings, illegal migration and so on. These illegal activities from the region are also pose a serious security challenge for the countries of the European Union. For this reason, the EU is making huge efforts to improve the border management capacities of the countries of MENA region that are the source of illegal migration and other cross border crimes. The EU is operating four crisis management missions and different other projects in the region, whose main aim is to develop the capacities of local law enforcement and border security services. Crisis management missions and operations, and different development projects run by the Union are the primary means of effectively tackling the security challenges from this geographical area. In these missions, police and border guards officers, other law enforcement professionals and civilian experts are playing an increasingly important role. By acting as trainers, mentors and advisers law enforcement officers and civilian experts contribute to strengthening law, order, and border security in this part of the world.

Keywords: crises, terrorism, migration, border security, law enforcement development

I. Introduction

The Middle East although the term refers to a geographically bounded area - located largely in Asia, but with a western border extending into Africa through Egypt - it is nevertheless a political-historical rather than a geographical concept. It was created during the 20th century thanks to the discovery of huge amount of natural resources like oil and gas. Also, it has a complex ethno-religious-political relations. With the collapse of the Ottoman Empire and the subsequent end of British and French colonialism, the creation of the State of Israel, ethnic, religious and political conflicts erupted into armed conflict.

North Africa is a collective name for the African Arab countries on the southern Mediterranean coast and these states have close cultural and economic ties with each other.

The Arabic language, spoken in different dialects, unites the countries of the MENA region. They are also linked by the Islamic religion (except State of Israel), which plays a dominant role in the region. Regardless of linguistic and religious relations, each country and ethnic group pursues its foreign and domestic policies according to its own interests. This leads to tensions between the different actors. Their clashes often lead to armed conflicts between different countries or between different political and religious groups within a certain country. Besides the political tension the MENA countries are also strongly affected by climate change. Its population is growing rapidly but due to the harsh climates, extremely high temperatures, limited water sources and limited fertile soil force the local population to leave their homeland². These negative factors contribute to political and economic instability in the region. In areas where the state cannot exercise control, terrorist organisations and various local armed groups

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² <https://www.iemed.org/publication/climate-change-in-the-mena-region-environmental-risks-socioeconomic-effects-and-policy-challenges-for-the-future/>

appears and take over the control. Political instability, wars and civil wars, which are the starting points for various global security challenges (international terrorism, weapons and drug smuggling, trafficking of human beings, etc.), are thus a direct threat to the EU.

The EU's Common Security and Defence Policy³ (CSDP) efforts to support the MENA region, is illustrated by the fact that 4 of the EU 12 civilian/police missions currently deployed in this geographical area. The main task of these EU missions is to support local, legitimate governmental bodies to restore and promote the rule of law. Strengthening public order and border security by training the members of local law enforcement agencies. The missions also implement technical improvements to enable the local partners to perform their tasks more effectively.

II. EUBAM Libya Mission

The European Union Integrated Border Management Assistance Mission in Libya (EUBAM Libya)⁴ is a non-executive civilian/law enforcement⁵ CSDP Mission. It helps Libyan authorities manage their borders and fight cross-border crime like human trafficking, weapon smuggling, and terrorism. The main task of the EUBAM Libya is to build the capacity of local organisations responsible for border control in the country. To support the effective management of Libya's land and maritime borders in the fight against cross-border crime. The EUBAM Libya fulfils its mandate through training, mentoring, monitoring and advising the local counterparts. Mission's staff are providing advises, training and mentoring the senior and middle management of Libya's law enforcement and border security services. In addition, it implements various projects to improve Integrated Border Management system of the host country. The mission also focuses on human rights and gender equality in the area of border management. It is also providing support for restoring the border security training system in the country and renovation of border guard training facilities.

The EUBAM Libya is also supporting the cross-border cooperation between Libya and the neighbouring countries especially with Sahel region⁶. Because terrorism, illegal migration and trafficking of human beings from the Sahel region pose a serious security risk also for Libya and as the target area for the EU.

Stretching from Senegal to Eritrea, the Sahel region is bordered by the Sahara Desert in the north and tropical Africa in the south. The region faces serious and complex security and humanitarian crises. Since independence in the 1960s, violent extremism has been flourishing in many countries in the region. Weak and corrupt governance, economic problems, population growth and the worsening effects of climate change have dramatic results⁷. Until the overthrow of the Libyan dictatorship in 2011, the central government took a tough stance against security threats originated from the Sahel region, After the fall of Gaddafi's regime and the outbreak of the Libyan civil war, the central government collapsed. Internal political chaos developed in the country, instability and division characterize Libya since then. The army, border guards and law enforcement forces were disbanded. The country's borders were "opened", and nobody stopped the terror groups, the human traffickers and illegal migrants. The compounds of the armed forces were looted, and their supplies appeared on the black market⁸. The weapons fell into the hands of members of local organized criminal groups and terrorist organizations.

³ https://www.eeas.europa.eu/eeas/common-security-and-defence-policy_en

⁴ https://www.eeas.europa.eu/eubam-libya_en?s=327

⁵ In EU terminology, any mission that does not involve military force is considered a civilian activity.

⁶ <https://www.britannica.com/place/Sahel>

⁷ <https://www.cfr.org/global-conflict-tracker/conflict/violent-extremism-sahel>

⁸ <https://www.hrw.org/news/2020/03/05/interview-libyas-chaos-explained>

As a result of the chaos and civil war, Libya has become a major route for illegal migration, arms smuggling and human trafficking to Europe⁹. The Islamic State terrorist organisation, whose members are actively involved in smuggling, has emerged in the area.

In these circumstances, the EUBAM Libya mission has an important role to support the local law enforcement services to restore the law and order. Well-trained border guards, other law enforcement officers and civilian experts from EU Member States with extensive professional experience continuously train the middle and senior managers of the Libyan border security forces and other local law enforcement agencies. The different trainings provide opportunity to local colleagues gain theoretical and practical knowledge on the operation of the integrated border management system. They are trained on how to carry out border security related risk analysis. They also acquire knowledge of the planning, organising, and managing land and maritime border surveillance, conduct border security operations. They get information about international standards of border check at land border crossing points, at seaports and airports. The mission also takes huge efforts on strengthening cooperation with neighbouring countries against cross-border crime. Enhancing this kind of cross-border cooperation requires a high level of political commitment and professional approach to better tackle cross-border crimes. In this reason, the mission organises conferences and trainings to better understand the current situation and cross border challenges. It supports the application of strategies, measures, and technologies to make effective border control at the Libyan land and maritime borders.

The Mission works closely with other partners such as EU Delegation and other EU agencies. It is also cooperating with United Nations Support Mission in Libya (UNSMIL) and other UN agencies such as the International Organization for Migration (IOM)¹⁰, UN Development Program (UNDP)¹¹, and bilaterally with EU Member States, who provide technical and financial support for Libyan Border and Coast Guards¹².

III. EUAM Iraq Mission

The EU Advisory Mission in Iraq (EUAM)¹³ was launched in October 2017, in response to the Iraqi government's request to the EU, to implement Security Sector Reform (SSR). The mission's initial mandate was for one year (until 17 October 2018), with an annual extension based on local needs. The mission's current mandate runs until 30 April 2024¹⁴. EUAM Iraq is headquartered in Baghdad. The main tasks of the mission are to support the effectiveness of local, civilian law enforcement activity as part of the Iraqi National Security Strategy and the implementation of security sector reform in the country. These kind of development activities are supported also by other international organisations like the UN and NATO. The tasks include the implementation of institutional reforms and the fight against terrorism, organised crimes, and illegal cross border activities. In the mission's mandate is a key element also support for the development of a well-functioning integrated border management system in Iraq. As well as supporting effective action against corruption, money laundering and illicit trafficking of cultural heritage. EUAM Iraq mission staff support the Iraq National Security Council and Ministry of Interior officials responsible for leading the security sector reform. mainly through advice at strategic level.

⁹ <https://press.un.org/en/2012/sc10546.doc.htm>

¹⁰ <https://www.iom.int/>

¹¹ <https://www.undp.org/>

¹² https://neighbourhood-enlargement.ec.europa.eu/news/eu-delivers-support-border-management-libya-2020-07-16_en

¹³ <https://www.euam-iraq.eu/en>

¹⁴ COUNCIL DECISION (CFSP) 2022/635 of 13 April 2022 amending Decision (CFSP) 2017/1869 on the European Union Advisory Mission in support of Security Sector Reform in Iraq (EUAM Iraq)

After collapse of Saddam Hussein's regime in 2003 and fail of international military action for stabilization led by USA, the country turned into chaos. A civil war broke out between the previously dominant Sunni minority and the Shiite majority. Organised crime activity has grown, and Islamic extremism has gained ground in the country. One of the most feared terrorist organisations in our current history, the Islamic State¹⁵ (ISIS), was born in the country. Protecting state borders is a matter of national sovereignty and the responsibility of the Iraqi authorities. The disbanding of the state defence and security forces including the Border Guard Army forces after 2003 had a major negative impact on Iraq's ability to protect its state borders¹⁶. The process of reconstituting the Iraqi armed and security forces started in 2005 supported by the USA. It was a slow process, and the country suffered a setback in 2014 after ISIS grown up and invaded large parts of Iraq. The country lost the ability to control of its borders with Syria and Jordan after the ISIS took control of the border area¹⁷. Because the ISIS controlled the territory on both sides of the Iraqi Syrian border could provide free movement for terrorists, smugglers, and traffickers. Until 2017, when Iraq defeated ISIS, the border area was a paradise for terrorist and organised criminal groups till Iraq began to regain control of its borders. The border security is still critical, as Iraqi border security forces have limited ability to prevent smuggling and other cross border crimes at the Iraqi Syrian border. Also concerning the high number of Syrian refugees after 2011, there was not any comprehensive professional practice, rather Iraqi authorities at some border points dealt ad-hoc manner with it.

Another huge problem in the country since 2003 the crimes committed against cultural heritage. The territory of the country is one of the birthplaces of human civilization. There are thousands of excavation sites on its territory, which became targets of organized criminal groups after the fall of Saddam's regime. It is also difficult to estimate how many artefacts from these places and at what value disappeared in the international black market. The looting of the historical sites and smuggling them abroad flourished especially in the areas controlled by ISIS. This activity was one of the terrorist organization's sources of income. Before the American troops entered Baghdad in 2003, the national museum was also looted by members of local criminal gangs¹⁸.

The local Ministry of Interior (MoI) takes lot of efforts to restore the border management and border control supported by international partners. In this activity the EUAM mission is one of the main partner. Iraqi government created the Border Crossings Commission as an organisation directed by the Prime Minister and responsible for the management of infrastructure at border cross points.

This Commission is responsible for improving the quality of services provided at Border Crossings.

According to the Mission's mandate the EUAM staff are advising and mentoring local counterpart(s) on the strategic and operational level to enhance the security in the country including border security. Mission's supports the accountability of counterparts and analyses the weaknesses in the performance and to propose solutions for strengthening same.

The EUAM provides analysis and recommendations to the local partners in the area of developments. The EU staff plans and delivers training, according to the local needs. The Mission's experts advise and assist the Iraqi MoI Border Forces Command on the development of organisational structures and models to addressing to security challenges such as cross border crimes. They also assist the Iraqi MoI Border Forces Command on the development effective

¹⁵ <https://www.britannica.com/topic/Islamic-State-in-Iraq-and-the-Levant>

¹⁶ Robert Bateman: Iraq and the Problem of Border Security SAIS Review vol. XXVI no. 1 (Winter–Spring 2006)

¹⁷ Kheder Khaddour and Harith Hasann: The Transformation of the Iraqi-Syrian Border From a National to a Regional Frontier. Carnegie Endowment for International Peace. 2020.

¹⁸ Elizabeth C. Stone: An Update on the Looting of Archaeological Sites in Iraq

command and control system to operate effective border security mechanism. The mission works on the development of an Iraqi Border Management Model according to international standards. The mission supports the local partner services on intra-agency, inter-agency and international cooperation contributing to a well-functioning Integrated Border Management system. They advise the Iraqi MOI Border Forces Command on information exchange, employment of databases and adapting procedures to the on-going introduction of biometric identification and travel documents.

With its advisory and mentoring activities, the mission contributes to increasing the capacity of local border security forces. As a result, the well-functioning border control system keeps out terrorists and smugglers, while at the same time helping legal cross-border travelers and foreign trade activity in the country.

IV. EUBAM Rafah Mission

The Arab-Israeli confrontation is one of the oldest ongoing conflicts in the world. Political, economic and often armed conflict between the opposing parties has been ongoing since the middle of the last century, with varying degrees of intensity. Mitigation, peacekeeping and normalisation of the conflict have long been a priority for some international organisations. In addition to the UN, the EU has also paid particular attention to the Mediterranean region, including the Palestinian territories, in recent decades. The EU has sought to play an active role in crisis management there. The Union remains committed to supporting the peace process and it is actively involved in crisis management, with two missions in the Palestinian territories supporting the rule of law and law enforcement capacity building. One of the missions is, the EU Border Assistance Mission for Rafah Crossing (EUBAM Rafah)¹⁹.

Since 2006, the mission supports the Palestinian Authority's²⁰ border police, customs agency, and other law enforcement forces involved in border security related tasks. It is assisting in the development of an Integrated Border Management system. The Rafah Crossing Point is currently the only "gateway" to the outside world, where, under strict rules, local Palestinian residents of Gaza can leave the Strip and travel to and from the outside world, subject to prior notification. The legal basis for the operation of EUBAM Rafah is the Joint Action Plan adopted by the Council of the European Union on 12 December 2005, the "Agreement between the Palestinian Authority and the State of Israel on Movement and Access" signed on 15 November 2005, and the "Guidelines for the Rafah Crossing Point Agreement" signed between the Palestinian Authority (PA) and Egypt. The Parties have agreed that the EU Mission at the Rafah Crossing Point will act as a third-party as observer. It monitors and supports the work of the legitimate PA's border security forces. It also ensures the crossing point's operation in accordance with international standards.

Following the Hamas takeover in 2007, EUBAM Rafah was withdrawn from the Gaza Strip according to a decision taken by the EU Council and, with a reduced number of personnel, is currently located in Israeli territory to train and mentor members of the legitimate PA border police and customs services. The EU considers Hamas as a terrorist organisation, and does not recognise the legitimacy of the 2007 takeover, and considers only the legitimate PA based in Ramallah (West-Bank) as a partner.

Currently, EUBAM Rafah is carrying out its mandated tasks at the Al Karama crossing point in Jericho with a reduced staff. The mission regularly organises trainings, workshops and study visits for the staff of PA border security forces. In 2015, the Palestinian experts were able to gain experience in Hungary on the training system related to border policing. Also they were

¹⁹ <https://www.eubam-rafah.eu/>

²⁰ Internationally recognised, legitimate Palestinian Government

briefed about the planning and organising border policing activities, the system of road, rail, air, river border check and customs control in our country.

Despite international efforts and repeated agreements between Hamas and the Palestinian Authority, the "return" of the Rafah crossing point has not been implemented in practice and the PA and the Mission continue to share responsibilities only at the Al Karama terminal. At the political level, the idea of terminating the Mission has been raised repeatedly due to the failure of the return to Rafah. This was not supported by most EU member states, as it would be a kind of "betray" of the PA, and therefore the mission continues to operate, albeit with reduced staffing, in support of legitimate Palestinian border police. Thus, Palestinian border police and customs services are ready to return to Gaza at any time following a possible political settlement, to take over control of all border crossings at short notice and control the maritime and land borders with the help of the EU, in line with international standards.

V. Hungarian participation in the activity

A The EU Specialized Team

Hungary as located on the main route of the illegal migration to EU has a deep concern about stabilization of MENA countries. In this reason the country regularly deploys border police and other law enforcement expert to support the stabilization process. The European Union's Committee for Civilian Aspects of Crisis Management (CIVCOM) invited Member States in December 2019 to set up a border security specialized team to reinforce EUBAM Rafah Mission²¹. The main tasks of the international specialized team (ST) were to "set up" the border management Command and Control Centre (CCC) at Al Karama Border Crossing²² in accordance with international standards. Also, the team was to train the local law enforcement officers who are later serving in the CCC. And ST was to tasked to draft the necessary regulations for the CCC operation. The selection of the candidates of the international team and the decision on their deployment was taken on 20 February 2020.

The EU decision makers were looking for active law enforcement, border police/guard and customs officers serving in the national authorities of the Member States with appropriate professional skills in the field of border control, customs control, risk analysis and operation management.

The CIVCOM decided to organise a joint pre-mission training for the members of the ST before their deployment, which was to prepare them to deal with the different challenges in the area of operation, in addition to the knowledge related to integrated border management. The Polish, Czech, Slovak and Hungarian authorities agreed to nominate experts to ST together. Since Hungary supported the deployment of the team from the beginning at political level and nominated two suitable experts for the ST, CIVCOM officially requested the Hungarian National Police HQ to prepare a pre-deployment training program for the team. The training concept was prepared by the designated staff of the Civilian Crisis Management Sub-division of the Hungarian Police Education and Training Centre²³. The program contained the specificities of the mission and the expected security risks.

The training concept was accepted by the European Union and Hungary was officially requested to organize the training, which took place at the Szeged Border Police Training

²¹WK 12871/2019 INIT (EEAS/CPCC.1(2019)7483335 Ramat Gan, 22.10.2019) working document

²²The crossing is located in Jericho West Bank and operated by the Palestinian Border security forces.

²³The Police Education and Training Centre has since been reorganised and the sub-division has been renamed Foreign Deployment and Peace Support Division. Source: <https://rokk.hu/bemutakozas/szervezeti-felepités/gazdasági-szervek/kikepzési-es-tanfolyamszervezési-foosztály/rokk-kisz-kulcszolgálati-es-beketamogato-osztály/> (Downloaded:15 June 2023)

Centre²⁴ between 2-5 March 2020. The training costs were co-financed by the European Union Police and Civil Services Training (EUPCST)²⁵ program (10% domestic funding, 90% financed by EUPCST).

The team has been set up to cover the whole spectrum of integrated border management, with some members having experience in customs, border control, international police cooperation, risk analyses, travel document expertise, and management of operations. Poland, Czech Republic and Slovakia nominated 1-1, Hungary sent 2 officers to the ST, also, Germany was represented by one border police officer.

The training was divided into two modules: a professional module on integrated border management and a module on security awareness due to the high-risk environment in the mission area.

B The tasks of the Specialized Team

Unfortunately the six trained officers in March 2020 cannot be deployed in the end, as on 6 March 2020, the Palestinian Authority closed access to foreigners to the areas under its control, and a few days later the State of Israel closed its borders in view of the COVID-19 pandemic²⁶. The actual deployment of the team did not take place until October 2022.

The six trained officers waited for several months in a kind of standby at their home duty station to be deployed and then slowly "dispersed". Several of the team members have successfully applied to other CSDP missions, Frontex and one to the EU HQ in Brussels. Thus, a total of two officers were available when the CPCC decided in June 2022 to deploy the ST.

Only Poland and Hungary were able to provide a suitable candidate with the appropriate expertise in short deadline. So, the ST was finally deployed to the area of operations with a total of four officers and started its mission in October 2022. However, this did not jeopardise the effective implementation of the task, as the professionalism, knowledge and mentality of the selected experts made up for the lack of personnel.

The tasks of the ST were defined by the European External Action Service (EEAS) as follows:

- Support to start the operation of CCC,
- strengthening cooperation within and between the different organizations under the command of the Palestinian General Administration for Borders and Crossings (GABC),²⁷
- defining the tasks of the CCC in the cooperation,
- train the selected, future staff of the CCC to carry out their tasks effectively,
- identify the shortcomings in the current GABC organizational structure and its operation, make proposals for corrections.

The team, in consultation and close cooperation with the EUBAM Rafah Mission's and GABC's heads, planned, organized and implemented its two-month activity as follows:

- Developing organizational and operational regulations for the CCC and its staff in line with international standards. Establish Standard Operational Procedures (SOP) for the Al Karamah Border Crossing Point.

²⁴Border Policing Training Centre Source: <https://rokk.hu/bemutatkozas/szervezeti-felepites/rendorkepzo-akademia/jarorkepzo-tagozat-szeged/hatarrendeszeti-oktatobazis/> (Downloaded: 15.June 2023)

²⁵The Steering Committee of the European Union Police and Civilian Services Training (EUPCST) Source: <https://esdc.europa.eu/2021/12/15/european-union-police-and-civilian-services-training-eupcstljubljana-slovenia-14-16-december-2021/> (Downloaded: 15.June2023)

²⁶US Embassy in Israel Travel Advisory –March 13. 2020.

Source: <https://il.usembassy.gov/travel-advisory-march-13-2020/> (Downloaded: 18 June 2023)

²⁷The GABC is an umbrella organisation responsible for border control and manages the activity of all relevant LE agencies taking part in the integrated border management.

- Develop written regulations for the implementation of border and customs controls in line with international standards. Define in written form the tasks and responsibilities of the Head of CCC, for the Shift Commanders and the staff assigned to serve in the CCC.
- Conduct theoretical and practical training for future CCC operators, as set out in the written regulations. listed above.
- Mentoring, monitoring, and advising the staff of CCC, after starting its operation.

C Training of the CCC staff

During the two-week long training, theoretical lectures and practical sessions were mixed to break the monotony and keep the students' attention. The main objective of the training is to prepare the future staff of the CCC for the effective operation of the Centre, in accordance with international standards. The other objective was to train them to plan, organize and manage joint operations.

In the training session, emphasis was placed on the following:

- General introduction of the concept of IBM.
- The role of border police and customs service in IBM.
- Cooperation and coordination between the organizations involved in border management.
- Compliance with human rights provisions and rules in border control, respect for human dignity.
- Collecting, analysing, evaluating and sharing information between the different organizations.
- Cooperation within and between organizations related to border control, and the process of cooperation with neighbouring countries and their border security services.
- Principles of risk analysis related to border control and border security, practical implementation of risk analysis.
- Reporting procedures, different reporting methods.
- Implementation of gender equality in border control.
- Cultural awareness, cultural, linguistic and religious differences, prevention and management of conflicts arising from them.
- Radio communication training, international standards for using HF²⁸ and VHF²⁹ radios.

Specific professional skills required to carry out border and customs controls in the framework of integrated border management:

- First line border check, the technical equipment used for it, the control procedures, post-control decisions.
- Second line border check, the technical equipment used for it, the control procedures, the post-control decisions.
- Identification of passengers, detection of forged or falsified travel documents, detection of impostors.
- Providing physical security of the crossing point, GABC staff and passengers.
- Managing possible emergency situations during border control.
- Profiling of passengers and the detection and effective response to potential risks.
- Carrying out customs checks and the technical equipment used by customs services.
- Safe and effective screening of buses.

On the last three days of the training, we organized a live exercise session where participants could put into practice the theoretical knowledge they had previously acquired in the classroom.

²⁸High frequency

²⁹Very high frequency

The participants of the training were divided into three working groups, which focused on the operation of the CCC. This included a practical familiarization of all participants with each and every working stations of the terminal. Familiarization with the widely understood IT and technical tools that will be used in the CCC room.

In this part of the activity the teams rotated like a carousel, one was deployed at the entry side of the terminal, one on the exit side and one in the CCC performing operational tasks. This gave them the opportunity to put the theoretical knowledge into practice.

At the end of the training, all trainees received a certificate of recognition attesting to their successful completion of the course.

During the last part of the ST activities, the CCC's future operators ran the Centre in a kind of test run. ST task was to monitor and mentor their activities. The 13 best performing officers selected by GABC operated the CCC in real conditions. The international experts just “standing behind” them, monitoring their activities and giving advice when it was needed.

This part of the activity was a real surprise for me as the former leader of the ST, because our local colleagues took over immediately and used the CCC in a professional manner from the very first moment. The officer who acted as shift commander was able to manage the activities of the whole team. He briefed the staff according to operational needs, giving clear tasks to the CCC operators. The CCC operators were skilled in the use of the various technical tools, and they could manage the flow of information between the CCC and the various units and services of the GABC deployed at the terminal.

Having monitored CCC operators professionalism, we concluded that the selected and trained PA GABC staff is able to operate the Command Centre in accordance with international standards and operational needs. Of course, further technical and operational improvements are needed.

VI. Border security project in Lebanon

The International Centre for Migration Policy Development (ICMPD)³⁰ is an international organisation with 20 Member States. It operates in more than 90 countries worldwide and takes a regional approach to its work to build effective cooperation and partnerships along main migration route's countries. Africa, Eastern Europe and Central Asia, the Mediterranean, the Silk Road, the Western Balkans and Turkey are the regions and countries in its focus. Its approach to migration management, linking policy and research, migration dialogue and capacity building, contributes to better development of migration policies around the world. The Vienna-based international organisation has also representative office in Brussels and has local field offices in 30 countries in Europe, Asia, and North Afrika. ICMPD financially funded by Member States and the European Commission, also the UN and other international donors. The organisation founded in 1993, it has an UN observer status and cooperates with other partners on migration management.

As part of a project called „Developing National Capacity for Integrated Border Management (IBM) in Lebanon” the Hungarian University of Public Service Law Enforcement Faculty actively took part³¹. The aim of the EU-funded project is to provide professional skills in border management to effectively support the Lebanese border police in the fight against illegal migration and border-related crime. To initiate the project, the dean and deputy dean of the faculty of law enforcement travelled to Beirut, where they gave a presentation about the university's ongoing border police training and education system. Then in the first part of project's executive phase, two Hungarian border policing experts held several days IBM related

³⁰ <https://www.icmpd.org/>

³¹ <https://rtk.uni-nke.hu/hirek/2023/08/31/integralt-hatarigazgatasrol-a-libanoni-partnereknek>

training for senior and middle managers of the Lebanese border security forces and other law enforcement agencies in Beirut.

The theoretical training included presentations on the European Union's IBM model.

The main topics were the followings:

- Introduction to the general definition of IBM through the 3 pillars, in line with 'Guidelines for Integrated Border Management in European Commission External Cooperation' developed with the support of the ICMPD.
- The Border and Coast Guard Agency (Frontex) roles and responsibilities.
- International Police Cooperation against cross-border crimes and tools to perform police cooperation/coordination.
- Examples of recent developments and good practices in the European Union (including Hungary).
- Inter-agency cooperation: Checknet (Integrated Management Centre) and use of ILLMIGRINFO system.
- Reinforcement of the border surveillance of the Western-Balkan countries external borders by police troops (in Serbia, North-Macedonia), based on bilateral agreements.
- International Customs and Police Cooperation Centres.
- International Police Liaison Officer's Networks.
- Introducing the Border Surveillance System in Hungarian-Serbian border relation.

After the lessons the trainers organised interactive sessions, presenting and discussing case studies. The Lebanese partners were asked to give their own views on how they could incorporate the shared experiences into their own border management systems.

In the second part of the project, from 17 to 21 July 2023, Lebanese law enforcement leaders visited Hungary and gain practical experience about the IBM system and work of border police units there. During the study trip, the Lebanese border security managers were able to learn about the University of Public Service Law Enforcement Faculty border policing training and education system. They were escorted all around the campus and they had opportunity to see the special border policing classrooms, where Hungarian border police cadets are trained and educated. They visited the Ludovika Hussar Stable where cadets have opportunity for horse riding. The delegation also visited the sports and recreation centre, the shooting range, the obstacle course. The upcoming days they visited the National Police Headquarters, where they got a presentation on risk analysis related to border-related crimes. In addition they had opportunity to visit the Nickelsdorf-Hegyeshalom (Austrian-Hungarian) contact office, where representatives of the Austrian and Hungarian police exchange relevant border-related crime's data in 24 hours a day. They were able to see the implementation of the joint Hungarian-Austrian patrol activity and the technical equipment they use. On the M1 motorway, runs from Budapest to Vienna is a major route for illegal migration, the guests were shown how police check suspicious vehicles, as part of fight against Trafficking of Human Beings. During the project, Lebanese border security managers gained useful theoretical and practical knowledge that they will be able to apply in the future in their own work at home.

VII. Conclusions

Security challenges from the Middle East and North Africa, such as illegal migration, trafficking of human beings, terrorism, will be a long-term challenge for the EU. These security risks can only be effectively reduced if we support the countries of origin in developing their own border management capabilities. Border security related operational and training cooperation should not only be maintained between EU Member States or neighbouring transit countries. It is very important to involve the MENA countries in this kind of cooperation. From EU side sharing border management experience and best practices can significantly enhance

the capabilities of the MENA countries. In addition to providing economic assistance, the countries of the region should be continuously supported in developing their border management capabilities. Hungary, which lies on the main route for illegal border-related activities, has accumulated decades of professional experience, sharing this can also support the MENA countries operational capabilities.

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Cyber Crimes – Modern Threat to the Information Security

Ahmet Nuredini¹

Information security presents the most important asset of all organizations and security agencies in general and national security in particular.

Presently, there is a widespread global network and an interaction of information systems worldwide, therefore the means of communication and information technology play a crucial role in security of information.

However, there is a need for an increased security of systems, due to various attacks on computer systems and networks, this as a result of identified weaknesses on current information technologies by the perpetrators.

Cyber crimes, represent the most serious challenges not only for the national security and its institutions and agencies, but also for international security agencies and global security.

The main characteristic of cyber crimes is their global effect. Being so, an international focus is required, considering that the perpetrators while committing the cyber crimes use various means that have no specific territorial boundary. Society develops along with information technology, the number of criminal offences against security of information included and cyber crimes increases.

It is a disturbing fact that the cyber-crimes are more distinct and in conjunction with other criminal offences such as organized crime, cyber terrorism, fraud, threats and other criminal offences. Based on the higher risk that the cyber-crimes present against information security, all state mechanisms in general and security agencies in particular, need to develop their information defence architecture and its security. In this aspect, the purpose of securing the information is to ensure the availability of data system and confidentiality, so to disable unauthorised access to information and to preserve the confidentiality of information during its transmission through data verification and integrity.

Keywords: information, security, threat, cyber, crime.

I. Introduction

The purpose of this article is to contribute to the information security, to expand overall knowledge on information, to emphasize how important is the information security for the national security, to study and research the cyber crimes as a modern threat to the information security. Also, to contribute in theory and practice in prevention and combating cyber-crimes.

It is well known that today, information with the information of society is passing at a later stage, even, it may be said that we now live in the society of as Rifkin points out, “*We are not entering the era of access to service and a network and selection in a series of transfer activity takes place in space cybernetics and computer networking*”².

The information security presents the most important asset of all organizations and security agencies in general and national security in particular.

However, there is a need for an increased security of systems, due to various attacks on computer systems and networks, this as a result of identified weaknesses on current information technologies by the perpetrators. The cyber crimes, represent the most serious challenges not

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² Rifkin J, 2001: 221

only for the national security and its institutions and agencies, but also for international security agencies and global security.

The issue of existing problems related to cyber-crimes, represent the most serious challenges not only for the security agencies and national security of a country, but also for the international security agencies and global security.

More specifically, the information security is exposed towards cyber crimes as the modern threat to the information security, committed by various subjects in different forms, among others by unlawfully using the technology and communication network.

Based on the higher risk that the cyber crimes present against information security, all state mechanisms in general and security agencies in particular, need to develop their information defence architecture and its security. In this aspect, the purpose of securing the information is to ensure the availability of data system and confidentiality, so to disable unauthorised access to information and to preserve the confidentiality of information during its transmission through data verification and integrity.

II. Research methods

In this article, I applied several scientific methods, which consist in study of information security and cyber-crimes in dimensions of evolution and their occurrence, with focus on modern society, in the perspective of national and international legal framework.

The methods applied for the study of this topic are as follows: legal, analysis, statistical and comparative method, including other study methods linked with elaborated issues in this article.

III. Threats towards information security

In the aspect of security information, the threat is described as an object, person or other subject outside institution that presents a continuous risk for a specified asset of information. The information security may be threatened severely also within the institution, through inappropriate politics applied in processing and storing information, from negligence in maintaining electronic equipment, also from human error at work.

Threats facing information security may be considered as threats coming from outside and inside sources. The latest digital technology inventions enabled use information technology to commit criminal offences related to information security. The growth of electronic industry, expansion of computer production and purchase by consumers increased the probability of new forms of these criminal offences, while cybercrime reached a global character.

A The cyber-crimes as the modern threat to the information security.

In fact, security is a state of being safe, free from the danger it may cause.³(Whitman & Herbert & Mattord, 2011: 8).

The latest digital technology inventions enabled use information technology to commit criminal offences related to information security. The growth of electronic industry, expansion of computer production and purchase by consumers increased the probability of new forms of these criminal offences, while cybercrime reached a global character. Some of the criminal offences are known as cybercrimes such as: hacking, development and distribution of viruses, software privacy, illegal downloading, identity theft etc.

Cybercrimes are one of the main threats for global and national security in general, and for the information security in particular. Cyber-crime is a clear and present danger that has turned into a silent global digital epidemic. Cyber crime encompasses a wide range of offences,

³ Whitman & Herbert & Mattord, 2011: 8.

including hacking of computers, data and systems, computer-related forgery and fraud such as phishing and harming, content offences via dissemination of pirated content. It has evolved from the mischievous one-upmanship of cyber vandals to a range of profit-making professional criminal enterprises in a remarkably short time. And there is a rapidly growing nexus between cyber crime and a variety of other threats, including industrial espionage, foreign intelligence services and terrorism. Cybercrimes are one of the main threats for global and national security in general, and for the information security in particular.

Cybercrime, in its various forms, represents an increasing threat to world wide level . Cyber-attacks, online child sexual exploitation, and online frauds are highly complex crimes and manifest in diverse typologies. Meanwhile the perpetrators behind these crimes are becoming increasingly agile, exploiting new situations created by geopolitical and technological changes.⁴ Estimates from the academic literature on the losses to United States “range so widely as to be meaningless”- from \$2 billion to \$400 billion or more a year.⁵

The cybercrime is described as use of the computer, computer system or its applications in committing an illegal activity. The computer equipment may be used to commit crimes in three ways: as a tool, target of a crime and as a tool and a target of a crime. Cyber criminals seek to exploit human or security vulnerabilities in order to steal passwords, data or money directly.

Cybercrimes present major problems for the global community. The Internet's purpose and its trans-national character is to combat computer crimes. Cyber attacks have become a new form of permanent warfare. A cyber attack can destroy a country without personnel ever being sent to that country. Internationally, high-tech crime is one of Interpol's top priorities.⁶

A global domain within the information environment consisting of the inter-dependent network of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers.

The use of cryptocurrencies and the proliferation of anonymisation techniques, including encryption, will continue to grow. Cyber-dependent crime comprises a number of different attack techniques and modi operandi, which are constantly evolving in order to exploit previously unknown vulnerabilities.⁷

B High-Tech crime

A form of cybercrime, high-tech crime refers to crimes that use electronic and digitally based technology to attack computers or a computer network.

Such crimes include the hacking of computers or any unauthorised use or distribution of data, denial of service attacks and distribution of computer viruses.

High-tech criminals use a suite of malware tools, ranging from banking trojans to ransomware and phishing, to stage their attacks.

Malware, or malicious software, infiltrates and gains control over a computer system or a mobile device to steal valuable information or damage data. There are many types of malware, and they can complement each other when performing an attack.⁸

⁴<https://www.europol.europa.eu/publication-events/main-reports/internet-organised-crime-assessment-iocta-2023>. The Internet Organised Crime Assessment (IOCTA) is Europol's assessment of the cybercrime, 2023.

⁵<http://blogs.cfr.org/asia/2011/the-scope-of-the-problem-how-much-does-cyber-espionage-cost-the-united-states>.

⁶ Broadhurst, R.& P. Grabosky, 2005: 37

⁷ Serious and Organised Crime Threat Assessment (SOCTA), Europol, 2021.

⁸ <https://www.europol.europa.eu/crime-areas-and-statistics/crime-areas/cybercrime/high-tech-crime/> accessed on 24.09.2023, at 10:15 hrs.

IV. Cybersecurity Threats and Trends for 2023

The latest digital technology inventions enabled use information technology to commit criminal offences related to information security. The growth of electronic industry, expansion of computer production and purchase by consumers increased the probability of new forms of these criminal offences, while cybercrime reached a global character. Some of the criminal offences are known as cybercrimes such as: hacking, development and distribution of viruses, software privacy, illegal downloading, identity theft etc.

A Creation and distribution of viruses

With the term computer virus, it is understood the program which performs some intentional and undocumented actions, without the user's knowledge and to his detriment" ⁹. A computer virus is a set of computer instructions that reproduces itself in computer programs when they are carried out by unauthorized programs ¹⁰. In order to prevent the spread of viruses, software programs must be equipped with antivirus.

Antivirus is developed to detect the presence of viruses and then eliminate them as well as protect programs from future infections. ¹¹ The basic characteristic of this work is the creation and distribution of these destructive programs, the possibilities of which are to induce and carry various forms of damage to the systems in which those viruses are found. There are two forms of doing this work: creation and distribution of viruses.

B Fishing

Phishing attacks, in which carefully targeted digital messages are transmitted to fool people into clicking on a link that can then install malware or expose sensitive data, are becoming more sophisticated. Now that employees at most organizations are more aware of the dangers of email phishing or of clicking on suspicious-looking links, hackers are upping the ante — for example, using machine learning to much more quickly craft and distribute convincing fake messages in the hopes that recipients will unwittingly compromise their organization's networks and systems.¹² Such attacks enable hackers to steal user logins, credit card credentials and other types of personal financial information, as well as gain access to private databases.

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Now that employees at most organizations are more aware of the dangers of email phishing or of clicking on suspicious-looking links, hackers are upping the ante — for example, using machine learning to much more quickly craft and distribute convincing fake messages in the hopes that recipients will unwittingly compromise their organization's networks and systems. Such attacks enable hackers to steal user logins, credit card credentials and other types of personal financial information, as well as gain access to private databases.¹³

Phishing is any process designed to extract personal information from a targeted victim. This is often done by e-mail. A common scenario may involve the perpetrator creating a fake website that is designed to look like a legitimate financial institution's website.¹⁴

⁹ Petrovic, 2000: 185.

¹⁰ Lyman, 2010: 605.

¹¹ Vacca V, 2013:88.

¹² <https://onlinedegrees.sandiego.edu/top-cyber-security-threats/> accessed on 24.09.2023, at 13:25 hrs.

¹³ <https://onlinedegrees.sandiego.edu/top-cyber-security-threats/> accessed on 24.09.2023, at 15:20 hr

¹⁴ Eastom & Taylor, 2011: 6.

C State-Sponsored Attacks

Beyond hackers looking to make a profit through stealing individual and corporate data, entire nation states are now using their cyber skills to infiltrate other governments and perform attacks on critical infrastructure. Cybercrime today is a major threat not just for the private sector and for individuals but for the government and the nation as a whole. As we move into 2022, state-sponsored attacks are expected to increase, with attacks on critical infrastructure of particular concern.¹⁵

Many such attacks target government-run systems and infrastructure, but private sector organizations are also at risk. According to a report from Thomson Reuters Labs:

“State-sponsored cyber attacks are an emerging and significant risk to private enterprise that will increasingly challenge those sectors of the business world that provide convenient targets for settling geopolitical grievances.”¹⁶

D Vulnerability in the Cloud

There are many advantages to cloud storage - encrypted servers with limited access, consistent cybersecurity measures and built-in firewalls, among others. And while cloud storage is typically far more secure than saving files on a hard drive, it still comes with certain risks. The National Security Agency has cautioned against four types of cloud vulnerabilities - misconfiguration, poor access control, shared tenancy and supply chain vulnerabilities. Other cloud vulnerabilities may include insecure API-s and lack of multi-factor authentication.¹⁷

E Data Breaches

Data breaches have, unfortunately, become all too common, and they don't seem to be going away any time soon.

Some of the biggest data breaches of the 21st century include top companies like Yahoo, LinkedIn, Facebook and Marriott International. According to Comparitech, the U.S. has experienced the most data breaches with 212.4 million people affected in 2021 (compared with 174.4 million people in 2020). The closest country behind the U.S. was Iran with 156.1 million people affected by a data breach in 2021.¹⁸

F Mobile Attacks

The average cell phone user in the U.S. spent 4 hours and 23 minutes on their device in 2021. Smartphones are everywhere; not only are they used for personal connection and communication, but they are often essential for business, which makes them even more vulnerable to cyber threats. Just like computers and laptops, smartphones are susceptible to many security threats, including phishing, poor password security, spyware and malicious apps.¹⁹

G Identity theft

Identity theft is the process of obtaining personal information so that the perpetrator can pretend to be someone else.

¹⁵ <https://onlinedegrees.sandiego.edu/top-cyber-security-threats/> accessed on 24.09.2023, at 17:33 hrs.

¹⁶ Ibid.

¹⁷ <https://onlinedegrees.sandiego.edu/top-cyber-security-threats/> accessed on 24.09.2023, at 13:25 hrs.

¹⁸ <https://onlinedegrees.sandiego.edu/top-cyber-security-threats/> accessed on 23.09.2023, at 13:33 hrs.

¹⁹ Ibid,

By means of this crime, an individual or criminal organization usually accesses information and data on someone's bank account or credit card and, in an unauthorized way, carries out monetary transactions by spending that person's money²⁰.

With this crime, the person's identity is stolen and then this identity is used to commit fraud with the victim's personal data, such as: insurance numbers, bank accounts, or credit card numbers. Identity thieves provide names, addresses, dates of birth and can apply for loans on behalf of their victims. The Internet is the easiest and most effective way to commit identity theft. It is easy for criminals to use a person's credit card information to make purchases because Internet-related transactions happen quickly and without prior personal interaction.

V. Conclusions

Based on the complex analysis and study of the cyber crimes we have reached several conclusions that according to my opinion are useful and are presented as follows: -Information and its security jointly followed the evolvement of the society.

- The information security is an obligation for the entire society in all countries, which can be achieved by building national and international cooperation bridges in harmonizing legislation and joint effort in ensuring global information systems, furthering developments of politics and procedures in combating cybercrimes.
- Currently, the modern society confronts the greatest technical-technology achievements. The increased use of information technology in general and the internet in particular, including the tendency of having a networking society, raise the risks that we confront today.
- The development of information technology and use of internet in this modern society enabled premeditated misuse of such achievements by facilitating possibilities in committing criminal offences against the information security.
- The success in the fighting cyber crimes, requires national and international cooperation and coordination, so to guarantee the information security. The information security is a concern for all users of information technology in the society. Specifically, the information security is a priority issue in the society.
- Threats to Cyberspace will continue to grow as the internet expands and evolves globally, adversaries will have both the capability and intent to do serious harm.
- Cyber crimes require a specialized approach by the criminal justice institutions, law enforcement agencies and prosecution office. Therefore, these institutions need to develop their capacities in order to effectively increase investigation in securing electronic evidences related to these criminal offences.
- The elaboration of clear differences between criminal offences related to information security would be of assistance to a degree for police, prosecution and court employees in correctly qualifying the offences. Also, the distinction between these criminal offences is of practical interest.
- Considering the fact that cyber crimes endanger all potential users of information technology equipment and users of internet, therefore wide-ranging information sources are suggested through training and education especially for the youth, families, schools, civil society, and state institutions.
- The most practical forms to institutionalize a competent information for the society in general and the youth in particular, is to receive information on criminal offences related to information security, organizing joint workshops with representatives of civil society,

²⁰ Ross, 2010: 23

media and security agency officials, organizing of awareness campaigns on internet proper use.

- The cybercrimes are mainly committed by persons having an advanced knowledge of computer systems, mainly through computer technology.
- The intelligence agencies have a great importance for the information security, representing an essential part of the national security. They function by gathering and analysing information in relation to threats towards the state and population. In order to have stronger sections in the field of diplomacy, security, economy and energy, it is imperative to have a strong state intelligence. The intelligence agencies are the most essential and sensitive parts of the state, which stabilize the state, but also alarm the state in case of threat.

VI. Recommendations

In general, the article has identified the fields that require improvements, and identified challenges and issues that require more attention, in order to prevent and combat cyber crimes. The article provides the following recommendations:

- To increase Capacity building for law enforcement agencies in combating cybercrime.
- To implement detection systems for interceptions, by using passive sensors to identify cases when unauthorised users attempt to access networks and information technology systems.
- To contribute in increasing the cooperation level with local and international organizations in combating criminal offences related to information security.
- To increase proactive investigation as an effective means to achieve a successful criminal prosecution of offenders related to criminal offences of information security.
- Law enforcement agencies to implement additional joint international investigation operations as it is proven to be the best method in combating criminal offences related to information security in cases when the offenders are from different states. Therefore the number of joint operations needs to increase in the future.
- Additional effort to be given in public awareness, on properly applying information technology resources, including the proper and transparent use these resources in relation to the criminal offences related to information security.
- Organizing lecturing sessions, workshops and seminars with security organizations, educational institutions, civil society and others, with the aim to make aware and identify the means of computer misuse and means to prevent and combat the criminal offences related to information security.
- Organizing joint conferences, seminars or workshops with other security organizations, with the aim to increase level of awareness and professionalism for security institution officials regarding information and importance of information security, to increase mutual trust and cooperation, that would result in advancement of “cooperation bridges” between security organizations, professional development and efficiency in the field of exchanging information.

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<https://www.episerver.com/guides/covid-19-privacy-considerations;>

Forensic Voice Analysis in Criminal Investigations¹

Jadranka Otašević², Božidar Otašević³, Saša Atanasov⁴

Forensics, as a multidisciplinary activity, has as its main task the provision of material evidence of all kinds. The scope of forensics includes all preliminary activities that are a necessary precondition for providing evidence, as well as work on clarifying criminal acts, especially those with unknown perpetrators, as well as actions performed immediately after cognition about the existence of the criminal act and which are part of police action. One of the main goals of forensics is the identification of persons. In recent years, there has been a growing interest and need to identify the perpetrator of a crime based on voice. A person's voice is a feature of identity, because just as there are no two identical fingerprints, two same handwriting or two same retinas, there are no two identical voices.

Evidence based on voice analysis can be crucial for identifying, prosecuting and convicting the perpetrator. The information that is transmitted through speech communication is discrete in nature, because it consists of a series of elements from the set with a finite number of elements. The speed of the exchange of information, when it comes to speech, is determined by the physical limitations to which the human speech apparatus is subject. Forensic analysis of speech signal consists of three analyzes: auditory linguistic analysis, phonetic acoustic analysis and acoustic instrumental analysis.

Forensic analysis of the speech signal uses the achievements of several different sciences through the application of various complex methods. The multidisciplinary and complexity of the analysis makes this method of face identification extremely selective, and thus powerful.

Key words: forensic voice analysis, speech, evidence, crime.

I. Introduction

Criminalistik as a science discipline deals with the prevention and suppression of crime with the help of practical methods and various means. As a scientific discipline, it is characterized by commitment to man as a complex being, his protection through the protection of health and rights of individuals, but also the protection of the health and rights of the community. The successful detection and investigation of criminal offenses depends on a series of actions and measures undertaken in the prevention and detection of perpetrators of criminal offenses through general and special methods⁵. Through the work of criminal experts to determine the truth and truthfulness, as well as the implementation of legality by judicial and competent authorities, the increase in crime is prevented. In this way, the coordination and efficiency of

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⁵ Modly, D., Šuperina, M., & Korajlić, N. (2008). Rječnik kriminalistike (in Croatian) (Dictionary of criminal science) Zagreb: Professional Association of Criminalists.

the authorities in the fight against all criminal acts and forms of criminality is achieved⁶. In modern criminal procedural practice, the existence of material evidence is of essential importance for the success of the procedure for determining the material truth. Forensics, as a multidisciplinary field, is tasked with providing material evidence of all kinds⁷.

One of the goals of forensics as a discipline is the identification of persons. Biological characteristics make man a unique being on the planet. It is this uniqueness that is the basis of the process of determining identity, that is, identification⁸. In this paper, we will talk about the human voice and the possibilities of identifying a person based on his voice. In everyday life, we identify and recognize the people around us by looking and/or listening. With this approach and analysis, it is not only important what is said, but also *how it is said*. It means that, not only the choice of words and expressions with which one wants to say something, but the way of pronouncing sounds, intonation, pace of speech, organization of utterances, loudness, etc., are important, too. In addition, it should be kept in mind that in the concept of how, the accompanying actions, whether we smiled, were angry, what was our body position, the direction of our gaze, etc., are hidden. This very fact shows that attention should be focused not only on what was said, but also on the way it was said, all with the aim of more complete and successful communication. During communication, in addition to the verbal part of the message transmission, there is also a non-verbal part. Both of these "parts" of communication are constantly present and intensively influence each other. For the purposes of this work, it is important to emphasize the non-verbal part of communication that is hidden in the term kinesics, which is the name for the systematic use of facial expressions to communicate meaning, especially in relation to the use of language (e.g. when frowning or speaking changes the interpretation of the sentence that has been spoken)⁹.

Each person's voice contains physiological and behavioral characteristics and is therefore very specific. It is the personal characteristic of each individual, such as a fingerprint, DNA profile, signature or eye structure. Biometric is a science that deals with examining those characteristics and features with the aim of confirming the identity of a person¹⁰. Voice analysis as one of the methods belongs to the biometric technique, which is based on the analysis of a person's behavior¹¹. Biometric methods of voice analysis are mainly based on information obtained by analyzing acoustic features in the speech signal that are characteristic of each speaker. Forensic methods are based on the use of all possible individual markers (characteristics) that can be identified in the speech signal, as well as on the linguistic information that the speech signal carries. We can conclude that there is a significant difference in the analysis of the acoustic features of the speech signal for the needs of biometric and forensic methods. Namely, with the biometric method, the desire of the examinee is to be recognized, which means that the examinee is cooperative and that the final outcome is awaited, which is acceptance or non-acceptance by the system¹².

With the forensic method, the goal of the interviewee (speaker) is to conceal the identity, the interviewee is uncooperative, and the final outcome may be a conviction for a criminal offense.

⁶ Simonović, B. (2004). *Kriminalistika (in Serbian) (Criminalistic)*. Belgrade: Faculty of Law, Institute of Legal and Social Sciences.

⁷ Otašević, J., & Otašević, B. (2021). Voice-Based Identification and Contribution to the Efficiency of Criminal Proceedings. *J. Crimin. & Crim. L.*, 59, 61.

⁸ Tuthill, H. (1994). *Individualization: Principles and procedures in criminalistics*, Salem: Lightning Powder Co.

⁹ Kristal (1999) Enciklopedijski rečnik moderne lingvistike (in Serbian) (Encyclopedic Dictionary of Modern Linguistics). Belgrade: Nolit, 160.

¹⁰ Ross, A, Jain, A, (2003) Information fusion in biometrics. *Pattern recognition letters*, 24(13), p.2118.

¹¹ Phillips, P.J., Martin, A., Wilson, C.L., Przybocki, M, (2000) An introduction evaluating biometric systems. *Computer*, 33(2), p.58.

¹² Phillips, P.J., Martin, A., Wilson, C.L., Przybocki, M, (2000) An introduction evaluating biometric systems. *Computer*, 33(2), p.60.

What also needs to be emphasized is the fact that with the forensic method, the content of the text being analyzed is beyond the control of the person doing the analysis, while with the biometric method, that content is carefully selected for the use of the biometric identification system¹³.

A Speech as a characteristic of the human beings

Speech, viewed as a sound signal, carries a lot of information. In addition to the content of the spoken message, it also carries information about the speaker, his gender, age, origin, health and emotional state, level of education, etc. When understanding what is said, a person uses his knowledge of the language and understanding of the context¹⁴. That is why it is important to "listen and hear" in a special way, and then analyze. With this kind of targeted and purposeful listening, it is very important that the listening subject has a certain listening skill¹⁵. This is where the competencies and experiences of the forensic analyst come to the fore.

B Basic human voice generation

Organs that directly participate in voice production are represented by the effector communicative system. The effector communicative system consists of four mechanisms: Initiation, phonation, oro-nasal process and articulation (respiration, phonation, resonance, and articulation). Each of these systems gives a characteristic to each speaker individually¹⁶. In addition to respiration, a person used the air current to generate voice, which circulates through the trachea-bronchial tree and lungs as the driving force for the vibrations of the vocal cords. Phonation requires a special control of expiration that is completely independent of the normal mechanism and rhythm of breathing. Optimal breathing with phonation is manifested in the fact that voice production is performed effortlessly, naturally and without tension. The larynx is the organ of phonation and voice generator¹⁷. It is an active cartilaginous tube, composed of several paired and unpaired cartilages¹⁸. The size of the larynx depends on the sex, age and individual characteristics of a person. The growth of the larynx leads to an increase in the vocal cords, which are 25 mm long in an adult man, and 18 to 20 mm in women¹⁹.

The voice resonator is the space where the basic laryngeal tone is amplified. In that space, resonance occurs, that is, when a medium under the influence of external vibration (vibrating energy) begins to vibrate itself. This is exactly what happens in this part of the voice generation process. A pure laryngeal voice is of very low intensity and without the participation of the resonator it would sound inhuman. The resonator must be matched to the tone source in size and shape, because there is an ideal resonator for each frequency. An ideal resonator must

¹³ Otašević, J., & Otašević, B. (2021). Voice-Based Identification and Contribution to the Efficiency of Criminal Proceedings. *J. Crimin. & Crim. L.*, 59, 61.

¹⁴ Otašević, J., & Otašević, B. (2021). Voice-Based Identification and Contribution to the Efficiency of Criminal Proceedings. *J. Crimin. & Crim. L.*, 59, 61.

¹⁵ Otašević, J., & Otašević, B. (2021). Voice-Based Identification and Contribution to the Efficiency of Criminal Proceedings. *J. Crimin. & Crim. L.*, 59, 61.

¹⁶ Keramitičijevski, S.(1990) *Opšta logopedija (in Serbian) (General Speech and Language Therapy)*, Belgrade : Naučna knjiga.

¹⁷ Cooper, M. (1977). Direct vocal rehabilitation. Approaches to vocal rehabilitation, ed. Cooper, M. and Cooper. *MH Springfield, III.: Charles C. Thomas.*

¹⁸ The *plicae vocales* of the vocal cords are banded muscle folds that extend from the corner of the thyroid cartilage to the vocal process of the arytenoid cartilage. During the process of respiration, the glottis (opening between the vocal cords) has a triangular shape. During phonation, the vocal cords come close to each other and completely close the opening of the larynx. Their approach to the middle of the larynx and vibration leads to the creation of sound.

¹⁹ Keramitičijevski, S.(1990) *Opšta logopedija (in Serbian) (General Speech and Language Therapy)*, Belgrade: Naučna knjiga.

amplify the fundamental tone and create the corresponding higher harmonic tones²⁰. The resonator of the human voice is ideal and unique, because it has the ability to change the shape, volume and solidity of the walls. This allows the almost unlimited ability of this resonator to adapt to the source of the basic tone and to enable a whole range of variations that cannot be caused by any instrument constructed so far. The articulatory system by function participates in the generation of each voice (phoneme) individually. Each phoneme has its own acoustic features that are directly related to the position of the articulating organs that make up the articulating system²¹. It should be emphasized that speech, as a physical realization of language, in addition to the information it carries, also carries information about the speaker's psychological and emotional state²².

Laver (1980)²³ points out that an experienced expert can, on the basis of a certain person's voice and speech, evaluate his build and body size, gender, age, health condition, etc. The social position can also be determined in general, where a person comes from, as well as many other facts.

Acoustic features are characteristics of each segment of speech (voice, syllable, word, verbal expression) and these features are located within *variation fields*. The variation field represents a set of values of an acoustic characteristic that has the same perceptual meaning in the identification of a verbal event²⁴. These variation fields represent "intra-speaker" and "inter-speaker" variations. Intra-speaker variations are consciously or unconsciously "imprinted" into the speech signal by each speaker. They are always present in spoken expression, and there are variations caused by emotions and conversation in specific situations (noisy environment - stadium, library, lecture...). Inter-speaker variations are characteristic of each speaker and they are markers of each individual (gender, age, dialect, accent, anatomical structure of the speech apparatus...)²⁵. Variations in the speech signal (acoustic characteristics) are perceived and well recognized by the listener. It is these facts that make the human (listener) still irreplaceable in the process of identifying a person based on voice (speech). When it comes to speaker identification, when it comes to forensic requirements, elements of discrimination within variation fields are essential²⁶.

C Forensic voice and speech analysis

In the forensic methods of voice and speech analysis, the following are most often used today: auditory linguistic analysis, phonetic acoustic analysis and hybrid forensic voice analysis (acoustic instrumental analysis)²⁷. One of the features related to forensic methods is that they use all possible "markers" that can be registered in the speech signal, as well as the linguistic

²⁰ Heđever, M., Kovačić, G. (1997). *Acoustics of voice and speech*, Course script Speech acoustics for speech therapy students, Zagreb: Faculty of Education and Rehabilitation in Zagreb.

²¹ Dobrota, N (2009). *Artikulationo fonološki poremećaji govora (Articulatory phonological disorders of speech)*, Belgrade: Institute for Psychophysiological Disorders and Speech Pathology "Cvetko Brajović" and Faculty of Special Education and Rehabilitation, University of Belgrade.

²² Jovičić, S. T. (1999). *Speech communication: physiology, psychoacoustics and perception*, Belgrade : Nauka.

²³ Laver, J. (1980). The phonetic description of voice quality. *Cambridge Studies in Linguistics London*, 31, 1-186.

²⁴ Allen, J. B. (1994). How do humans process and recognize speech? *IEEE Transactions on speech and audio processing*, 2(4), 566.

²⁵ Antešević, S., & Jovičić, S.T. (2000). Značaj koartikulacionih i kontekstualnih elemenata u percepciji govora (Significance of co articulation and contextual elements in speech perception), *Nauka Tehnika Bezbednost*, 1-2.

²⁶ Jovičić, S.T. (2001) Forenzički aspekti prepoznavanja govornika (Forensic aspects of speaker identification), *Nauka Tehnika Bezbednost*, 1.

²⁷ Jovičić, S.T, Grozdić, Đ. (2014) Arguments for auditory-instrumental approach in forensic speaker recognition, *Proc. of Int. Sc. Conf. "Archibald Reiss Days"*, KPA, Belgrade.

information that each speech message carries²⁸. In our country, there are no prescribed norms or protocols for such examinations, so the examinations are conducted in accordance with the code of the International Association for Forensic Phonetics (IAFP). Formulation of the final assessment is carried out according to the standards for comparing votes of the International Association for Identification adopted in 1991, which were expanded by the Forensic Science Service in 2000, based on the needs of practical experience²⁹. The formulated scale of verbal ratings is used in most European countries, and it is also used here in the Laboratory for Forensic Acoustics and Phonetics, Center for the Improvement of Life Activities, and is shown in Table 1³⁰.

Table 1: Vocal Identification Verbal Scale Grades

IAI standards (1991)	Forensic Science Service (2000)	Acoustic Phonetics and Forensics Laboratory Belgrade
Complete identification	Very strong likelihood	Very high degree of likelihood
-	Strong likelihood	High degree of likelihood
Probable identification	Moderately strong likelihood	Significant degree of likelihood
-	Moderate likelihood	Certain degree of likelihood
Possible identification	Limited likelihood	Likelihood exists and person cannot be excluded
Inconclusive case	Inconclusive case	Inconclusive case
Possible elimination	Limited unlikelihood	Unlikelihood exists and person cannot be excluded
-	Moderate unlikelihood	Certain degree of unlikelihood
Probable elimination	Moderately strong unlikelihood	Significant degree of unlikelihood
-	Strong unlikelihood	High degree of unlikelihood
Complete elimination	Very strong unlikelihood	Very high degree of unlikelihood

The essence of forensic recognition is the discrimination of characteristics in the speech of two speakers and the determination of criteria on the basis of which it can be determined with greater or lesser certainty whether their similarity exists. This assessment is given partially for each feature individually. The final evaluation is given by summarizing the analysis of all partial observations.

D Auditory linguistic and phonetic acoustic analysis

These analyzes are carried out by listening to the recorded speech signals and observing certain linguistic characteristics of the speakers in the recording containing disputed and undisputed voice. What needs to be emphasized is that all these methodologies are applied after processing the spoken material (recording that exists and that has been submitted for expert opinion). This analysis is based on the auditory experience of the forensic expert, on his subjective observation and assessment. It includes analysis of voice quality, specific phonetic-linguistic manifestations

²⁸ Kašić, Z. & Đorđević, J. (2009) About linguistic expertise in crime solving. Proceeding of First conference with international participation: *Law and forensics in criminal law*, p. 333-340, Belgrade: Academy of Criminalistic and Police Studies.

²⁹ Bijhold, J., Ruijrok, A., Jessen, M., Geradts, Z., Ehrhardt, S., & Alberink, I. (2007, October). Forensic audio and visual evidence 2004-2007: A review. In *15th INTERPOL forensic science symposium*.

³⁰ Jovičić, S.T. (2001) Forenzički aspekti prepoznavanja govornika (Forensic aspects of speaker identification), *Nauka Tehnika Bezbednost*, 1.

(which were discussed in the introductory part), changes in vocal expression, pathological changes in sounds and analysis of psychological and emotional state. It states the specific features of individual sounds, groups of sounds in disputed and undisputed voice. It is precisely in this part of the assessment that the spectrogram results (when the data obtained by applying both analyzes are crossed and combined) are of great help. It is known that the speaker's psychological and emotional state greatly influences changes in acoustic features in the time, frequency and intensity domains (prosody), while it has very little influence in the formant domain. In addition, this analysis evaluates several aspects of language, namely phonological-phonetic, dialectological, psycholinguistic and sociolinguistic.

E Hybrid forensic voice analysis

Acoustic instrumental analysis represents the application of methods using modern technology (computers) in order to obtain certain data contained in the acoustic wave, which cannot be obtained using only the sense of hearing³¹. In the context of speech signal processing, the acoustic theory of speech has proven to be useful for practical application. In order to analyze the speech signal with a computer, the acoustic wave needs to be converted into an electrical signal. It is the microphone that converts the acoustic wave into an electrical signal, but in the sound cards that almost all computers have, this signal is additionally adapted to multiple applications³². Then, many complicated methods are applied to that received signal, which gives the results of discrimination in disputed and undisputed voice. The methods used are: spectrogram, Fourier transformations, DFT (Discrete Fourier Transform) and FFT (Fast Fourier Transform), cepstrum analysis, analysis by means of spectral moments, LR – *Likelihood Ratio* and others.

F Spectrogram

Spectrogram testing involves visualizing the speech signal on a screen or with special instruments – sound analyzers. The result of the examination is a spectrogram – an image of a person's voice (voice print). In this way, the perpetrator of the crime could be identified by comparing the sound image – spectrogram, of the perpetrator with the sound images from the database. However, this is not possible because the human voice is a variable quantity, even when it belongs to the same person, the voice is prone to change due to a number of factors. Therefore, the result of the obtained identification is expressed only by a certain degree of probability of reliability of identification or elimination.

The basic acoustic characteristics of phonemes can be observed by analyzing the spectrogram. Each language has a different number of phonemes (between 30 and 50). The English language has 42 phonemes (these are graphemes that appear in the mark for reading English words), while in the Serbian language each phoneme corresponds to one letter of the alphabet and there are 30 of them³³. The speed of information exchange, when it comes to speech, is determined by the physical limitations of the human speech apparatus. These limitations are such that in normal speech a person produces an average of 10 phonemes per second³⁴. The spectrogram shows the speech signal in three dimensions. It shows the duration of the speech signal in seconds (s), the frequency in Hertz (Hz) and different shades of gray, black and white, which

³¹ Nešić, L., Kovačević, J., Stevović-Otašević, J. (2011). Forensic analysis of the speech signal (Forenzička analiza govornog signala - in Serbian), *Pravni život*, 60 (5-6), 90.

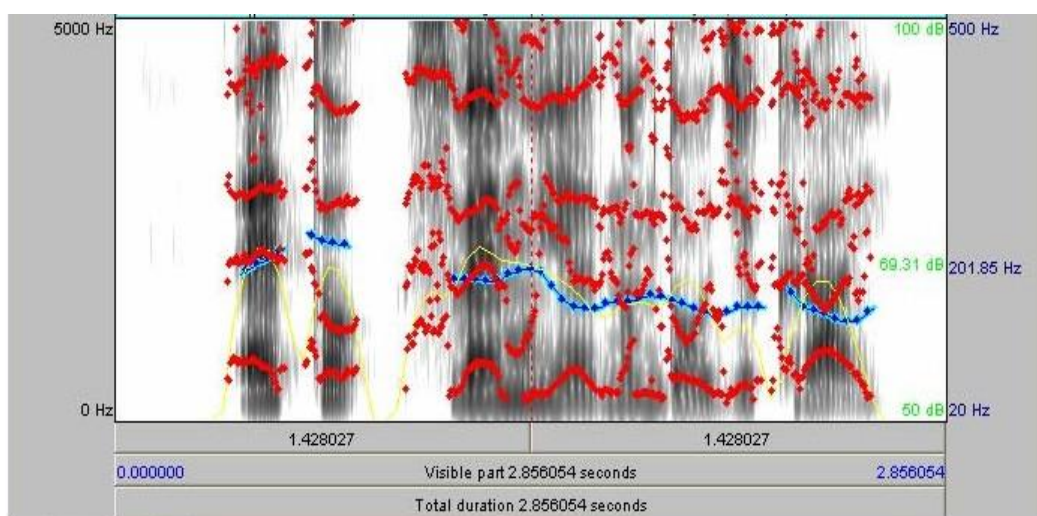
³² Nešić, L., Kovačević, J., Stevović-Otašević, J. (2011). Forensic analysis of the speech signal (Forenzička analiza govornog signala - in Serbian), *Pravni život*, 60 (5-6), 93.

³³ Nešić, L., Kovačević, J., Stevović-Otašević, J. (2011). Forensic analysis of the speech signal (Forenzička analiza govornog signala - in Serbian), *Pravni život*, 60 (5-6), 87 – 102.

³⁴ Otasevic, J., & Otasevic, B. (2021). Voice-Based Identification and Contribution to the Efficiency of Criminal Proceedings. *J. Crimin. & Crim. L.*, 59, 61.

represent a measure of the strength of the frequency components of the speech signal in a given unit of time. The white color indicates the existence of the strongest frequency, it is the most pronounced (it is characteristic of vowels), while shades of gray and black show noisy parts of the spectrum, characteristic of all consonants. Also on the spectrogram you can see the formants of the human voice, which represent spectral areas (peaks) and are characteristic of vowels as well as the consonants M and N³⁵. The frequency range of formants ranges from 250 Hz to 2.5 kHz³⁶. They represent the individual characteristics of each speaker and are extremely important in the identification process because they can distinguish or recognize people. Differences in formants are also influenced by coarticulation of adjacent phonemes in a word, as well as accent.

Picture 1: Spectrogram of speech signal



A more recent application of forensics in the field of voice and speech is based on the results obtained from auditory analysis and acoustic analysis that uses a *Bayesian* model to assess the reliability of evidence³⁷ based on the assessment of the probability of two opposing assumptions. And that is the prosecutor's assumption that the disputed voice/speech belongs to the suspect, and the second assumption is that it belongs to someone else from the possible suspect population. The relationship between these two assumptions is called the likelihood ratio (LR – *Likelihood Ratio*) and is expressed as a numerical value. This value shows the relative strength of the evidence and is an additional element to the prosecution, which makes their position stronger or weaker.

II. Conclusion

Forensic analysis in practice is performed on a large number of features (characteristics) that can be separated and analyzed in the available recordings. The essence of forensic processing of voice and speech is the application of various methods, which obtain a large number of

³⁵ Formants are indicators of the resonance of the vocal tract during the speech process. These are the frequencies of the strongest air current that passes through the vocal tract.

³⁶ Bijhold, J., Ruijck, A., Jessen, M., Geradts, Z., Ehrhardt, S., & Alberink, I. (2007, October). Forensic audio and visual evidence 2004-2007: A review. In *15th INTERPOL forensic science symposium*.

³⁷ Bakır, Ç., & Yüzkat, M. (2022, May). A Search on the Importance of Forensic Voice Studies in Forensic and a Example Application. In *2022 30th Signal Processing and Communications Applications Conference (SIU)* (pp. 1-4). IEEE.

results, and which in a certain way should suggest the final assessment and position in the comparison of two voices (disputed and undisputed). With this procedure, speaker recognition takes on the character of a multidimensional space and a multidisciplinary approach. The recordings that are analyzed are of different quality and often some features are impossible to identify, in addition, not all the features that are evaluated have the same importance and weight for assessing the individuality of the voice/speech. All these facts indicate the seriousness of the assessment procedure and require the work of experts in these fields. Material evidence is most often presented by experts, and the statements of witnesses and the suspect/defendant are confirmed or denied. Only evidence whose authenticity and evidentiary information derived from it is confirmed by experts and/or witnesses or/and suspects/defendants has probative value.

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Innovative and Traditional Techniques in Crime Scene Reconstruction – a Case Study¹

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This study presents the integration of traditional and contemporary methods in the domain of crime scene reconstruction, utilizing a homicide case as a practical illustration. The incident, dating back to the fall of 2021, involved the proprietor of a Hungarian distillery who caused the fatality of his employee during a dispute, employing both a stick and his bare hands as weapons. In the immediate aftermath of the crime, traditional methods of reconstruction were executed. Evidence of numerous hematomas on the victim's body was documented via meticulous close-up photography at the scene. During subsequent post-mortem examination, the size and shape of the hematomas were indistinguishable, yet the initial photographs facilitated pattern recognition that enabled an estimation of the number of strikes inflicted upon the victim. Additionally, a shoeprint detected on the victim's trousers was matched to the suspect's footwear, thereby corroborating the presence of a trampling event.

Modern techniques of reconstruction were later implemented. The crime scene was digitally rendered into a 3D model via photogrammetry, incorporating specific images from the original scene. The discovery and documentation of bloodstains informed subsequent bloodstain pattern analysis (BPA) conducted through the HemoSpat software. The BPA yielded insights into the victim's movements during the altercation. These graphic findings were subsequently incorporated into the 3D model, offering a more comprehensive and visually compelling representation of the crime scene.

Through the synergy of conventional techniques such as pattern recognition and advanced approaches like BPA and photogrammetry, a comprehensive testing of the suspect's confession and a nuanced reconstruction of the incident were achieved. This integrative approach played a pivotal role in concluding the case as an intentional homicide.

Keywords: homicide, bloodstain pattern analysis, HemoSpat, photogrammetry, 3D modeling

I. Introduction

At the end of October 2021, the police received a report that there had been a fatal incident at a private distillery located in the outlying area of Pirtó village in Central Hungary. When the police arrived on the scene, they found the owner of the distillery, a neighbor, and members of

¹ We thank the Bács-Kiskun County Police Headquarters, Criminal Directorate, Criminal Division for allowing the on-scene expert examination to be conducted, specifically to Mr. Gyula Bogdány, lieutenant colonel, Mr. Gyula Ferentzi, senior lieutenant, Mr. Árpád Skultéti, lieutenant colonel, and Mr. György Váróczi, honorary lieutenant colonel. Special thanks go to Ms. Ibolya Hadnagy, presiding judge, for providing the opportunity for a high-level presentation of the expert's report in the courtroom of the Kecskemét Court. Lastly, we thank the leadership of HIFS for ensuring the technical conditions for conducting the expert examinations.

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a medical team in the boiler room. The doctor who was part of the medical team didn't rule out the possibility of foul play, as the deceased had multiple injuries consistent with physical assault. The police interviewed the distillery's owner, who was also the employer of the deceased. The man stated that in the late afternoon, as he was heading to the boiler room, he found his employee on the ground still showing signs of life. He called his neighbor for assistance. Upon arriving in the boiler room, the neighbor attempted to resuscitate the injured person, and immediately asked for help using an emergency call system, but they were unable to save him. Based on the gathered information, the authorities conducted a crime scene inspection and initiated an investigation due to suspicions of a criminal offense. Detailed photographs were taken during the post-mortem examination by the on-call doctor, showcasing the deceased's injuries and visible blood-like stains in the boiler room. The victim's clothing and a tool handle stained with what looked like blood were confiscated. Since it was not entirely clear at the time of inspection whether a homicide had taken place, latent blood testing and inspection of the owner's clothing were deferred to a later stage in the investigation.

In Hungary, any "non-natural" death is handled by the criminal police. A non-natural death includes deaths resulting from criminal acts, which trigger a criminal investigation. Other cases of non-natural death, referred to as exceptional deaths, include all suicides, fatal domestic accidents, deaths from unknown causes, deaths of detainees even if from natural causes, and deaths of persons with unknown identities even if from natural causes. In these cases, the criminal police initiate an administrative procedure. The administrative procedure is carried out in such a way that if suspicions of a crime against life arise later, the evidence obtained during the administrative process can be used in the criminal investigation. The administrative procedure involves crime scene investigation, post-mortem examinations, autopsies, witness interviews, data collection, etc. In criminal proceedings, the autopsy is performed by two medical experts, while in administrative proceedings it's done by one expert. Although legally one can forgo an autopsy in administrative proceedings if no further information is expected from it, in Hungary, autopsies are almost always conducted. If, during the administrative process, the pathologist performing the autopsy suspects crime, the autopsy is halted, and the police are informed.

A death resulting from an intentional crime can be classified as homicide under Hungarian law if the perpetrator intends to take a life or resigns themselves to the possibility of the death occurring. A crime beyond intentionality is treated more leniently under the law, occurring when the perpetrator intends only to assault the victim, but the victim subsequently dies from the injuries. In Hungarian law, this is not considered negligent homicide but is deemed more serious than negligent homicide and less severe than intentional homicide. Negligent homicide carries a sentence of 1-5 years of imprisonment, crimes beyond intentionality have a range of 2-8 years, while intentional homicide has a range of 5-15 years. There are multiple aggravating factors for intentional homicide; under one such qualification, the sentence can range between 10-20 years or even life imprisonment. Aggravating factors include premeditated homicide, base motives or objectives (like sexual assault), exceptional cruelty (which can be causing excessive suffering or excessively brutal acts dehumanizing the victim), killing a defenseless victim, killing a child under 14 years of age, killing multiple people, etc.

In cases where the victim dies as a result of physical force or blunt trauma, it's essential to clarify the intent and the aggravating factors. Often, the acts involve beatings, leading to various non-immediately fatal injuries. However, frequent assaults can raise suspicions of murderous intent. Prolonged assault can suggest particularly cruel intent or suggest a crime against a defenseless person. The punishment can vary widely, from two years to life imprisonment, and depends solely on what can be proven. In most cases of death resulting from beatings, the perpetrator will admit to the intention to harm but not to the intention to cause death.

Regarding the fatal incident at the Pirtó distillery, the autopsy was conducted by experts from the Hungarian Institute for Forensic Sciences (HIFS). During the post-mortem examination and autopsy, numerous external and internal injuries were noted. The victim had injuries on their nose, the left side of the head, arms, upper, and lower body, which could result from hits, kicks, and assaults with a rod-like object. From the waist downwards, traces of instrumental impact were visible on the victim's back during the post-mortem examination, but these marks were not discernible during the autopsy. The investigating authority ensured an expert examination combined with an additional inspection for the appointed trace expert to examine the suspicious blood stains in the boiler room and reconstruct the mechanism of the victim's injuries. The goal was to combine traditional forensic investigative methods with the latest technical advancements and expert techniques to better substantiate data influencing the qualifying circumstances and to either prove or rule out the fact of intentionality.

II. Method

A 3D photogrammetry

In the context of a forensic scientist on-scene examination, a three-dimensional capture of the crime scene was carried out using 3D photogrammetry. Photogrammetry is a three-dimensional imaging process in which specialized imaging software determines the approximate three-dimensional structure of objects based on photographs taken from various viewpoints using mathematical methods. The basis of the photogrammetric three-dimensional model is a series of photographs that systematically scan the area or object to be captured in such a way that every detail becomes visible in different shots. The consecutive elements of the photo series must overlap with each other by at least 50-70%⁶.

The photo series was created under poor lighting conditions. The equipment used included a Canon EOS 6D camera, a Canon EF 24-70 mm f/4L IS USM lens, and a Canon Speedlite 430EX II flash. To expedite the process, a tripod was not used; instead, high sensitivity settings (ISO 1000-2000), relatively wide or moderately narrow aperture settings (f/5-f/9), flash and lamp lighting were employed to allow for handheld shooting with manageable shutter speeds (1/25-1/60s) while using a 24mm focal length. A total of 511 Canon Raw 2 (CR2) format photos were taken in a room with complex geometry containing numerous objects, and the photo capture process took approximately 45 minutes.

As part of the expert examination, additional metric photos were taken of visible, unwashed bloodstains, and the remnants of washed bloodstains were visualized and photographed using luminol.

The CR2 format photos were converted into JPG files using Adobe Photoshop Lightroom CC (Version 2015.12), and the three-dimensional model was created using RealityCapture (Version 1.2.0.16813) photogrammetry software. During the reconstruction of the three-dimensional model, relevant photos from the primer crime scene investigation were also used (a total of 32 photos). Due to the use of crime scene photos, the individual adhesive labeling numbers indicating bloodstains on the three-dimensional model appear partially transparent, which were used by the examination committee during the scene investigation. The three-dimensional model created from the scene detail is dimensioned based on on-site measurements and approximately reflects real-world dimensions.

⁶ Metzger Máté, Ujvári Zsolt, Gárdonyi Gergely, 'Forensic Application of Photogrammetry: Reconstruction of crime scenes, corpses, and object in three dimensions. [A fotogrammetria kriminalisztikai célú alkalmazása: helyszínek, holttestek, tárgyak rekonstrukciója három dimenzióban. In Hungarian]' *Belügyi Szemle*, 2020/11., 57-70. DOI: 10.38146/BSZ.2020.11.4

B Bloodstain pattern analysis and HemoSpat

Bloodstain pattern analysis (BPA) infers what happened, the sequence of events, the number of events, and the timeframe of the events from the shape characteristics of blood found at a crime scene, the characteristics of blood droplets, and the distribution of multiple droplets. It may reveal the relative positions of the involved parties and their movement in space.⁷

In this case, the *expiration pattern* was one of the relevant trace types.⁸ This pattern occurs when blood exits under pressure from the mouth or nose. It typically consists of small blood droplets, sometimes with observable air bubbles at their center. Another relevant trace type was the *swipe pattern*, which happens when a bloody object touches a surface and then moves across it.⁹ Its significance lies in the fact that the direction of the smear can usually be precisely determined, and in cases with overlapping traces, the order of their formation can also be ascertained. The *impact pattern* is a crucial trace type, which is created when blood splatters due to physical force, commonly seen in unarmed or weaponized assaults.¹⁰ Its immense significance lies in the fact that, once the blood droplets land on a surface, one can calculate the angle of impact (the sine of the angle of impact is the ratio of the droplet's length to its width). Furthermore, the droplet's long axis indicates the *area of convergence*, from which the *area of origin* in space can be determined when the angle of impact is known. The term *pool* refers to when a significant amount of blood accumulates due to gravity.¹¹ Typically on the floor, this occurs when bleeding happens over a relatively extended period. The *transfer stain* is also crucial, which is the contact of a bloody object with a surface; it differs from the swipe pattern in that the bloody object does not move across the surface.¹² Its significance lies in the fact that the original bloody object's outlines and patterns are often clearly visible when observing the transfer stain.

Using processed crime scene photos, the *FORident HemoSpat v11.1* software automatically calculates the angle of impact.¹³ By processing multiple droplets, the area of origin can be determined with the software's help. The result can be exported in graphic format, and the exported file can be embedded into three-dimensional image files.

The investigative authority provided the pattern evidence expert with the case's documentation and the original complete attire of both the victim and the perpetrator. Based on the information in the documentation and the suspect's testimonies, the pattern evidence expert established scenarios that could be corroborated or refuted through expert examination of the submitted evidence and crime scene clues and traces.

⁷ Silke Brodbeck, 'Introduction to Bloodstain Pattern Analysis' *Journal for Police Science and Practice*, 2 (2012) 51–57.; Thomas Buckles, *Crime Scene Investigation. Criminalistics, and the Law* (New York: Delmar Learning, 2007) 194; Petretei David, 'Bloodstain Pattern Analysis as an Innovative Tool for Crime Scene Investigation' [A vényom-elemzés mint a helyszínelés innovatív eszköze. In Hungarian] *Belügyi Szemle*, 2 (2017) 100-129. DOI: 10.38146/BSZ.2017.2.8

⁸ Stuart H James et al, *Principles of Bloodstain Pattern Analysis. Theory and Practice* (Boca Raton: CRC Press, 2005) 160; Tom Bevel and Ross M Gardner: *Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction* (Boca Raton: CRC Press, 2008) 225; William G Eckert, *Introduction to Forensic Sciences* (Boca Raton: CRC Press, 1997) 197

⁹ Stuart, *Principles*, 89; Bevel and Gardner, *Bloodstain Pattern Analysis*, 59; William G Eckert and Stuart H James, *Interpretation of Bloodstain Evidence at Crime Scenes* (Boca Raton: CRC Press, 1998) 306

¹⁰ Stuart, *Principles*, 119; Bevel and Gardner, *Bloodstain Pattern Analysis*, 41; Eckert, *Introduction*, 196

¹¹ Stuart, *Principles*, 87; Bevel and Gardner, *Bloodstain Pattern Analysis*, 61; Eckert, *Introduction*, 188

¹² Stuart, *Principles*, 88; Bevel and Gardner, *Bloodstain Pattern Analysis*, 61; Eckert and Stuart, *Interpretation*, 50

¹³ <https://hemospat.com/#/0>

C Mark examiner's methods

The mark examiner visually examined various residue smears (e.g., blood-like stains, dust smears) on the clothing items, inferring their formation mechanisms from their morphological properties.

Based on the size and shape characteristics of the visually observed footwear mark fragment on the victim's trousers, a preliminary selection was made among the available footwear. The sole of the suspect's right shoe showed size and shape similarities with the imprint fragment. Thus, using an ink method, a test imprint was made with it. Metric photographs of the imprint fragment and the test imprint were enlarged to the same scale and superimposed on each other using a superposition method.

III. Results and discussion

The scene of the crime was the distillery's boiler and the "L"-shaped room surrounding it. During an expert review held a week after the crime, we found several small blood drops on the boiler's front and side panels, as well as on the wall next to the boiler. However, the distillery owner, who was still at large, destroyed some of the blood-suspicious contaminants in the days following the investigated event. A secondary inspection allowed us to also conduct latent blood trace research on the concrete floor. To carefully assess the blood traces on-site, we conducted measurements, used Luminol blood trace research, and photographed the location using photogrammetry.

From the photos taken using the photogrammetry method, we created a 3D model, into which we successfully integrated those metric photos taken during the previous scene examination, showing all the blood-suspicious contaminants. This provided a virtual 3D representation of the original scene for the expert examination.

The blood stains found on the boiler's front wall in size and distribution were typical of an impact pattern. We documented their exact location in photographs and measured the distance of the drops from the concrete floor and the sidewall. Subsequently, by inputting the data into the HemoSpat software, we obtained three different areas of origin that suggested an assault in front of the boiler's front panel. Considering the victim's height, the area of origin corresponded to the slightly stooped head of the victim. The isolated impact pattern suggested at least one additional, fourth assault. We integrated the exported graphics from the HemoSpat software into the 3D model, making visible the victim's four reconstructed head positions in the 3D space, where injuries were sustained leading to an impact pattern on the boiler's vertical surface (see Picture 1).

Picture 1: The boiler with blood stains¹⁴



A: To the right of the entrance to the boiler house, there's a boiler where blood stains of an "impact pattern" type can be seen on its front wall. During the on-site examination, significant groups of traces were marked with metric arrows. B: During the expert examination, we measured the distance of the visible blood stains on the front wall from the wall and the concrete floor, and fed this data into the HemoSpat software. The results were integrated into the 3D model in vector format. The intersection points of the vectors show the spatial position of the injured person's bleeding head injuries, which we marked with colored circling. B-C: Blood stains wiped off by the owner of the distillery became visible on the entrance opening and the side wall of the boiler after integrating the inspection images into the 3D model (areas circled with dotted lines). We marked the blood traces, which were of the "expiration pattern" and "swipe pattern" type, close to ground level on the boiler's side wall with framing and circling. D-E: On the side wall of the boiler, the "expiration patterns" marked with green circling and the "swipe pattern" marked with white framing can be seen in detail.

For other impact patterns on the room's vertical surfaces, we could not make similar precise measurements as the owner washed most of the boiler's sidewall and the surfaces of the entrance's sidewalls. Based on the metric onsite photos integrated into the 3D model, additional

¹⁴ Source: Pictures taken by Zsolt Ujvári.

assaults, either with bare hands or using tools, and of medium velocity, likely affected the victim standing near the entrance and in front of the boiler's sidewall. Extremely elongated impact patterns are observed on the wall plane perpendicular to the boiler's front wall, indicating the blood source was very close to the wall. This is typical when the blood source hits the wall or a bloody body part strikes the wall, where in this case, the wall was the entrance. These traces also start from a height corresponding to the victim's head.

On the opposite door's glass insert to the boiler's front wall, an expiration pattern was visible at about face height considering the victim's height, confirming that the victim was still standing when blood from the respiratory tract got onto the vertical surface. Considering the victim's bleeding injuries, these trace groups could have formed, for example, as a result of a nasal injury when the victim coughed or sneezed while standing in front of the door.

Near the ground level below the mentioned impact patterns on the boiler's sidewall, another expiration pattern was observed. This group of blood traces confirmed that blood was exiting from the victim's airways when they were lying down, and their head was close to the boiler's sidewall. We found two swipe patterns in opposite directions here, suggesting the victim was moving back and forth while lying on the ground. Although it's generally possible to determine the sequence of trace groups, we couldn't determine the sequence between the expiration pattern and the swipe patterns here. This could be because the boiler wall was still hot when the blood reached its surface, and the traces burned onto it (see Picture 1 C-E).

These ground-level traces closely relate to the transfer stain or pool observed on the concrete floor made visible with Luminol during the secondary inspection, and the impact patterns visible on the surface of the tank opposite the boiler (see Picture 2).

Picture 2: The crime scene before and after using Luminol¹⁵



A: On the right side of the photo, there is a silver-colored tank, and on the left side, the side wall of the boiler can be seen. Bloodstains (impact pattern, expiration pattern, swipe pattern) were visible on their vertical surfaces. There were no blood traces on the intermediate concrete floor. B: Using Luminol, transfer stains or pools originating from the victim's head injuries also became visible on the concrete floor.

Blood traces, due to gravity, from the bleeding injuries to the victim's head were visible on the victim's clothing. The front of the perpetrator's coat showed an expiration pattern mixed with bloody saliva. According to the perpetrator's later confession, this could have formed when he moved the still-living victim before asking for help from a neighbor. On the side of his footwear, we found swipe patterns that indicated kicking the bloody body surfaces.

The deceased's clothing was covered in various material contaminants, whose morphological properties also supported the distillery owner's statement that after the assault, he dragged the victim by their armpits to a sitting position near the entrance (see Picture 3A). Additionally,

¹⁵ Source: Pictures taken by Zsolt Ujvári

during the forensic examination, a shoe impression was discovered on the left calf area of the victim's trousers, which had been preserved in its original state. Subsequent comparative analysis revealed that it originated from the sole of the perpetrator's right footwear (see Picture 3). Thus, the perpetrator stepped on the lower leg of the victim already lying prone.

Picture 3: The trousers of the victim and test imprint of the perpetrator's right footwear¹⁶



A: The backside of the victim's trousers can be seen. We marked with dotted framing the dust smudges that could originate from moving the body. B: A footwear imprint fragment can be seen on the left calf of the trousers. C: A test imprint made with an ink method from the walking surface of the perpetrator's right footwear. Images B and C are magnified to the same scale

Photographs from the death examination and the forensic examination of the confiscated, blood-stained tool handle quantified the number of tool-induced impacts on the victim's lower body, which the forensic pathologists couldn't determine during the autopsy. There were also injuries on the upper body indicative of a tool-related assault, but the properties of the trace-forming tool weren't reflected, and quantification wasn't possible. The perpetrator struck the victim's buttocks, thighs, and calves with a rod-like rigid object at least 28 times.

IV. Conclusion

The results of the investigations and the conclusions drawn from them, including the most likely version of events, were presented by experts at the criminal trial using visual documentation and a 3D model. With the projected 3D model in the courtroom, participants of the trial got a precise picture of where the victim and their assailant moved from and to during the examined incident, and what actions might have taken place at specific points in space. The experts, based on an assessment of bloodstains and physical evidence on site, and statements made in the

¹⁶ Source: Pictures taken by Zsolt Ujvári.

perpetrator's testimonies, concluded that the owner of the distillery repeatedly punched his employee near the entrance of the boiler room, then in front of the boiler's front wall. As a result, the victim's nose might have been broken. The scuffle between the two continued in front of the boiler's side wall, and then the victim ended up lying face down on the concrete floor. At this point, the assailant grabbed a tool and spanked his victim with a wooden tool handle, then kicked and stomped on him multiple times. After realizing something was wrong, he dragged the victim to the entrance and called his neighbor for help. The defendant, who fully confessed, raised no objections to the expert findings, did not dispute the accuracy of the reconstruction, and the expert examination confirmed his final testimony in many ways. The only disagreement he had with the reconstruction was about the position of the victim lying on the ground. The bloodstains noticed near the ground level on the side wall of the boiler were intended to position only the victim's head; it couldn't precisely determine where the victim's other, non-bleeding body parts were located in the available space. The exact position of the victim's body has no effect on the events, the assault, the sequence, and the timing. Therefore, the forensic medical findings and the bloodstain analysis-based trace expertise confirmed that the victim was assaulted while standing, then lying down, thus establishing the qualification of particular cruelty. The 67-year-old defendant was sentenced by the Kecskemét Court to 15 years in prison and a 10-year ban from public affairs, without the possibility of parole, for the crime of murder committed with particular cruelty.¹⁷

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Environmental Crime in Serbia

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Environmental crime is a type of contemporary crime that is registering intensive growth all over the world. This type of crime results in water, air, and land pollution, which jeopardizes the lives and health of people and causes large-scale destruction of natural resources. In the territory of the Republic of Serbia in 2017 and 2018, a total of 1934 cases of environmental crime were detected. More serious forms of environmental crime that occur in the Republic of Serbia include illicit trafficking of specific protected species of wild fauna and flora and unlawful disposal of hazardous waste. The Republic of Serbia plays an important role in the fight against transnational crime in connection with the endangered species of flora and fauna because it is situated on the most frequently used corridors for the transportation of goods in this part of Europe. In this article, the authors will try to describe what types of environmental crime have been present in the last few years in the Republic of Serbia.

Keywords: environmental crime, organized crime, flora and fauna.

I. Introduction

“Environmental crimes are recognized as a rapidly expanding form of international organized crime. This trend is driven by the escalating demands of both domestic and international markets for natural resources, as well as the lucrative nature of their exploitation. The relative ease with which these activities can be carried out is further facilitated by the inadequate legal frameworks in place at both domestic and international levels. Environmental crime is therefore intricately linked to economic crime, public health, and crimes against official duties.”³

Environmental crimes typically exhibit a blanket nature, that is, the execution of these activities is characterized by acting against the imperative principles outlined in numerous laws and regulations governing environmental protection. In other words, the act of perpetration of these crimes constitutes a violation of environmental protection regulations. For an individual’s activity to be qualified as a criminal offense, it is imperative that the consequences outlined by the legislator in the corresponding criminal offense materialize as a consequence of the violation of environmental protection regulations. Alternatively, engaging in such activity could be qualified as a misdemeanor.

According to a 2011 study by Europol, three out of the twelve transnational criminal activities that yield most financial gains are linked to environmental crime. The estimated annual value of these operations ranges from \$70 billion to \$213 billion. These include illegal trade in: 1) wildlife (with an estimated annual value ranging from \$7.8 to \$10 billion); 2) timber (with an estimated annual value of 7 billion dollars); 3) fish (with an estimated annual value ranging from 4.2 to 9.5 billion dollars).⁴

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⁴ Europol. (2021). “Serious and Organised Crime Threat Assessment (SOCTA)”, updated on Dec. 14, 2021, The Hague.

II. Forms of Environmental Crime in Serbia

“The problem of environmental protection has garnered significant attention in recent decades, both at the worldwide level and within individual states. The validity of this assertion is substantiated by a multitude of international legal documents of both universal and regional nature, which explicitly address the aforementioned matter.”⁵ For example, according to ECOLEX data⁶, there are approximately 2,000 international legal documents that regulate environmental protection issues directly or indirectly. This is a real hyperproduction of international legal documents in this area, which speaks volumes about the internationalization of the environmental protection issue.”⁷

By ratifying the respective international conventions, Serbia assumed the obligations associated with them; consequently, numerous laws were adapted to conform to the provisions of these conventions, all with the goal of protecting the environment.

Chapter twenty-four of the Criminal Code of the Republic of Serbia (CC) contains criminal offenses against the environment, which, according to Čejović and Kulić, are so numerous and diverse that they could be divided into subgroups, namely:

A General criminal offences against the environment:

- Criminal offence of environmental pollution;
- Criminal offence of failure to undertake environmental protection measures;
- Criminal offence of illegal construction and operation of facilities and installations polluting the environment;
- Criminal offence of damaging environmental protection facilities and equipment;
- Criminal offence of damaging the environment;
- Criminal offence of destroying, damaging, taking out of and into Serbia protected natural assets;
- Criminal offence of violation of the right to information about the state of the environment;

B Criminal offences related to dangerous substances:

- Criminal offence of importing dangerous substances into Serbia and unlawful processing, depositing and stockpiling of dangerous substances;
- Criminal offence of illegal construction of nuclear facilities;

C Criminal offences against flora and fauna:

- Criminal offence of killing and abusing animals;
- Criminal offence of transmitting of contagious animal and plant diseases;
- Criminal offence of unconscientious provision of veterinary services;
- Criminal offence of producing harmful products for treating animals;
- Criminal offence of pollution of animal fodder and water;
- Criminal offence of devastation of forests;
- Criminal offence of forestry theft;

⁵ Јовашевић Д., Улога стандарда међународне заједнице у уређивању и заштити животне средине, Политичка ревија, No. 1/2009, pp. 67–78.

⁶ECOLEX is an information service on environmental law, https://www.ecolex.org/result/?tr_status=In+force&type=treaty

⁷ Говедарица М., Кривичноправни инструменти адекватности заштите животне средине – норма и пракса Републике Српске - норма и пракса Републике Српске, Гласник Адвокатске коморе Војводине, 2022, pp. 1054–1055.

D Criminal offences of game and fish poaching:

- Criminal offence of game poaching;
- Criminal offence of fish poaching.⁸

The jurisdiction over the aforementioned criminal offenses is with the basic court, considering the severity of the potential penalties involved. Additionally, these offenses are prosecuted *ex officio* by the basic public prosecutor's office.

“Regarding the identification of the protected object in this group of criminal offenses, there is now a consensus that it does not protect traditional legal interests such as the well-being and physical integrity of individuals (including protection against novel forms of harm arising from endangering environmental). Instead, it protects a distinct interest, namely the environment itself, or more precisely, the human's right to a preserved environment. Given the significance of the environment and its preservation, it is reasonable to categorize it as an independent and primary object of protection. However, it is not justifiable to encompass under this category all offenses in which environmental protection is of secondary importance, primarily serving to protect some other goods.”⁹

When discussing the many manifestations of environmental crime, it is important to acknowledge that certain criminal acts are perpetrated by organized criminal groups, hence in certain cases possessing a transnational character. In this context, there exists a significant number of these criminal offences, accompanied by the complexity involved in their detection and resolution.

III. Statistical Analysis of Environmental Crimes in the Republic of Serbia

In this section of the paper, an analysis of statistical data obtained from the Statistical Office of the Republic (for the period 2012–2021) is conducted to examine the most common types of environmental crimes and their prevalence within the Republic of Serbia.

Table 1: Adults reported for criminal offenses against the environment by year

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1841	1996	2148	2205	2507	2187	2550	2425	2153	2012

In Table 1, it can be noted that the highest number of persons reported for committing environmental crimes was in 2018, when 2,550 adults were reported; the lowest number of reported adults occurred in 2012, when 1,841 persons were reported.

⁸ Чејовић Б., Кулић М., Кривично право, *op. cit.* pp. 487–489.

⁹ Стојановић З., Коментар Кривичног законика: према стању Кривичног законика од 1. децембра 2019. године и према стању законодавства од 27. новембра 2020. године, Службени гласник, Београд, 2021, р. 869.

Table 2: Adults reported for criminal offenses against the environment in 2021

	TOTAL	KNOWN PERPETRATORS IN TOTAL	WOMEN	UNKNOWN PERPETRATORS
Environmental pollution	14	9	-	5
Failure to undertake environmental protection measures	4	4	-	-
Damaging the environment	6	3	-	3
Destroying, damaging, taking out of and into Serbia protected natural assets	4	4	1	-
Importing dangerous substances into Serbia and unlawful processing, depositing and stockpiling of dangerous substances	7	6	-	1
Violation of the right to information about the state of the environment	25	24	4	1
Killing and abusing animals	231	117	16	114
Transmitting of contagious animal and plant diseases	12	11	-	1
Unconscientious provision of veterinary services	3	3	-	-
Pollution of animal fodder and water	3	1	-	2
Devastation of forests	33	27	2	6
Forestry theft	1563	850	30	713
Game poaching	93	76	-	17
Fish poaching	15	13	-	1
TOTAL	2012	1148	53	864

Table 2 provides insights into the prevalent criminal offences pertaining to environmental crime in the Republic of Serbia. Notably, the offenses of forest theft and killing and abusing animals emerge as prominent categories. Furthermore, the data reveals a significant male predominance among the perpetrators.

Table 3: Filed indictments – criminal charges against known adult perpetrators of criminal offenses against the environment in 2021

	Filed indictment – criminal charge			
	Total		Following the investigation	Following the taking of evidentiary actions
Environmental pollution	-	-	-	-
Failure to undertake environmental protection measures	-	-	-	-
Damaging the environment	1	1	-	-
Destroying, damaging, taking out of and into Serbia protected natural assets	2	1	-	1
Importing dangerous substances into Serbia and unlawful processing, depositing and stockpiling of dangerous substances	5	1	2	2
Violation of the right to information about the state of the environment	-	-	-	-
Killing and abusing animals	28	3	1	24
Transmitting of contagious animal and plant diseases	3	2	-	1
Unconscientious provision of veterinary services	-	-	-	-
Pollution of animal fodder and water	1	1	-	-
Devastation of forests	9	1	4	4
Forestry theft	276	37	7	232
Game poaching	17	4	-	13
Fish poaching	8	3	-	5
TOTAL	350	54	14	282

Table 3 illustrates a notable reduction in the number of indicted persons in relation to reported persons throughout the corresponding timeframe, namely in 2021. For example, in the same year, 1,563 persons were reported for forestry theft, although the number of indicted persons was only 276, representing a ratio of more than five to one.

Table 4: Adults convicted of criminal offenses against the environment, 2012-2021

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
430	508	589	549	472	512	484	417	291	323

Table 4 presents data that show that the highest number of convicted persons, amounting to 589, was observed in 2014, and the lowest number of convictions, totaling 323, occurred in 2021. By conducting a comparison between the aforementioned statistics and the number of reported persons provided in Table 1, it can be concluded that this number is over six times greater for certain years.

Table 5: Adults convicted of criminal offenses against the environment by imposed prison sentence in 2021

	Total number of convicted persons	Prison sentences					
		Total number of prison sentences	From 1 to 2 years	From 6 to 12 months	From 3 to 6 months	From 2 to 3 months	Up to 2 months
Damaging the environment	3	1	-	-	1	-	-
Destroying, damaging, taking out of and into Serbia protected natural assets	3	1	-	-	-	-	1
Importing dangerous substances into Serbia and unlawful processing, depositing and stockpiling of dangerous substances	3	-	-	-	-	-	-
Killing and abusing animals	25	1	-	-	1	-	-
Transmitting of contagious animal and plant diseases	1	-	-	-	-	-	-
Pollution of animal fodder and water	1	-	-	-	-	-	-
Devastation of forests	6	-	-	-	-	-	-
Forestry theft	265	28	2	5	14	6	1
Game poaching	14	1	-	-	1	-	-
Fish poaching	2	-	-	-	-	-	-
TOTAL	323	32	2	5	17	6	2

Table 5 reveals a minimal disparity between the figures pertaining to persons who have been convicted and those who have been indicted. For example, in 2021, a total of 25 persons were convicted for the criminal offense of killing and abusing animals, whilst the number of indicted persons stood at 28. In relation to the criminal offense of forestry theft, a total of 265 persons were convicted, while 276 persons faced indictment.

IV. Conclusion

In the territory of the Republic of Serbia, during the year there are around 2000 cases related with environmental crime. In the structure of these offenses the most numerous were forest theft, killing and wanton cruelty to animals and poaching game. Here is the cities in Serbia

where are these criminal activities are mostly done: Zaječar, Belgrade, Novi Sad, Niš and Leskovac.

More serious forms of environmental crime which occur in the Republic of Serbia include illicit trafficking of specific protected species of wild fauna and flora and unlawful treatment of hazardous waste. The illicit trafficking of specific protected species of wild fauna and flora belongs to the most profitable illicit activities to annual value of illicit proceeds at the global level. The protected species of fauna and flora and derivatives thereof are illicit trafficked for the purpose of consumption and use in the traditional medicine as well as for the production of different goods.

Environmental crime, in general, and its most serious forms in particular will remain a big problem in the coming period due to the pronounced dark figure of crime. Undeveloped mechanisms of international cooperation result in a low risk from detection of organized environmental crime, while the society is insufficiently aware of the dangers brought about by one of the main unfavorable factors on the national level.

It can be concluded that environmental crime represents a great threat to everyday life, to the planet and future generations. The routes used for wildlife smuggling are often used to smuggle weapons, drugs and cigarettes, but unlike the illegal drug trade, natural resources are limited, so they can not be performed in laboratory. However, it is a highly profitable form of crime, which allows organized criminal groups to make quick income and low risk detection due to the dark crime rate.¹⁰

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Application of Modern Analytical Methods in Forensic Geology

Tamás Stadler¹

Earth materials consist of minerals, stones, sediments, soils and related components. Forensic geological investigations of these materials can help the police to connect the suspect to the crime scene. Some minerals are dangerous for the environment and human health. Thus, their identification in construction materials and waste is also an important area of geoforensics.

Traditionally the examination of geological materials is carried out by using different optical microscopic methods. These methods are still essential parts of the investigations, however, due to the development of instrumental analytical chemistry and material science, new methods are available for mineralogical and geochemical analysis – even for forensic purposes.

The Department of Physics and Chemistry of the Hungarian Institute for Forensic Sciences (HIFS) has undergone significant development in the past decade. Many instruments, such as scanning electron microscopes (SEM-EDS), an X-ray fluorescent spectrometer (XRF), a laser-induced breakdown spectrometer (LIBS), an inductively coupled plasma mass spectrometer (ICP-MS) and an X-ray diffractometer (XRD) – are available and used for the examination of material residues, including geological ones.

SEM-EDS is a powerful tool to investigate micromorphology and local elemental composition, which is practical for the identification of individual grains, such as asbestos fibres.

Elemental analytical methods, like XRF, LIBS and ICP-MS are used for the examination of both local and bulk composition. The XRF and LIBS methods are semi-quantitative, but in environmental-related cases and high-precision comparisons, the ICP-MS's truly quantitative results are necessary.

By using X-ray diffraction, the investigation of minerals, inorganic and organic crystalline materials is possible, and this method supplements the results of elemental composition data and microscopic examinations. XRD is a powerful technique for the identification of unknown crystalline materials also.

In summary, the use of modern analytical equipment and statistical evaluation of measured data results in more objective, scientifically established reports in forensic geology.

Keywords: forensic geology, soil, asbestos, material residue, instrumental analysis

I. Introduction

The forensic analysis of geological materials has begun in the middle of the 19th century. In Prussia, Prof. Christian Gottfried Ehrenberg successfully compared sand fragments, found in a barrel, to solve a case of stolen silver coins². Some decades later, the examinations of Georg Popp, Edmond Locard, Edward Oscar Heinrich, and other scientists established the forensic applications of soil and geological analysis³.

From the beginning, the principal analytical methods were the different types of optical microscopic examinations. Mainstream geology still heavily relies on stereomicroscopes and detailed polarizing petrographic microscopes for investigating mineral grains, fossils and, by

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² Fitzpatrick, 'Nature, Distribution, and Origin of Soil Materials in the Forensic Comparison of Soils'.

³ Bergslien, An Introduction to Forensic Geoscience.

using petrographic thin sections, rocks. These methods are practical for identifying the soil- and rock forming minerals or the rocks themselves.

However, the needs in police investigations are usually higher than just identification: the similarity between forensic evidences (e.g. soil samples and fragments) has to be based on mathematical likelihoods, which means that the examinations have to produce quantitative data. Nevertheless, the usage of traditional analytical techniques (like investigations with the naked eye and optical microscopy) can produce mainly qualitative, sometimes semi-quantitative data. For making more and more semi- or full quantitative data and to reduce the subjective human factors, new analytical techniques, that are usually used by inorganic chemists and material scientists, have been applied for geological analysis since several decades.

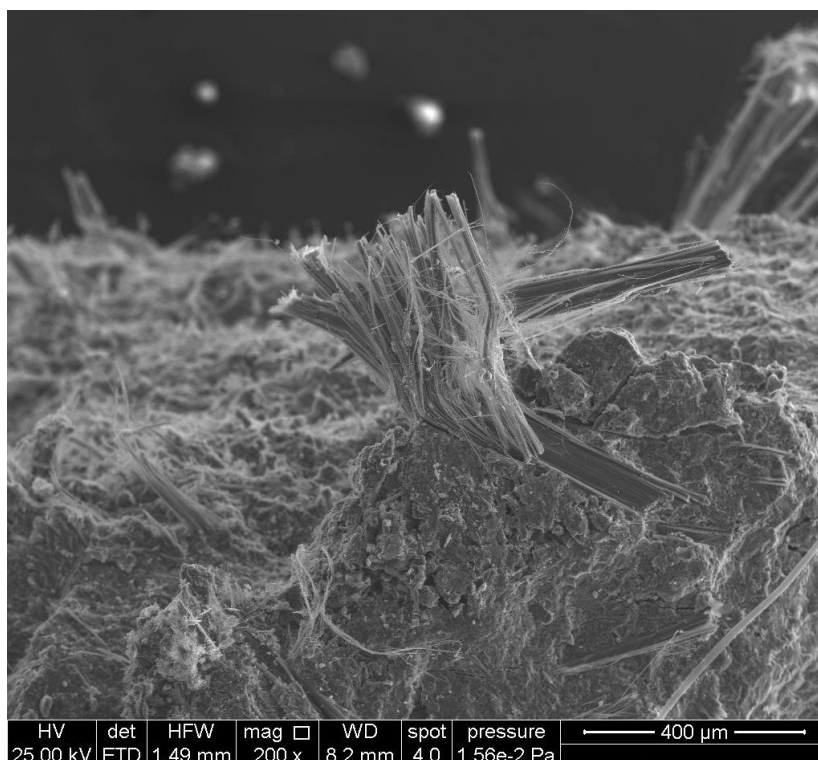
In the Department of Physics and Chemistry of the Hungarian Institute for Forensic Sciences many new instruments arrived since 2010, and most of them are used for investigating geological materials.

II. Forensic geological applications of scanning electron microscopy

In forensic applications, the scanning electron microscope with energy dispersive X-ray spectrometer (SEM-EDS) is widely used for gunshot residue (GSR) analysis. Although the method can be applied to numerous kinds of micro-scaled material residues, for example geological ones, the type of case when the SEM-EDS system is most frequently applied is the examination of asbestos.

Asbestos is a morphological property of some kinds of minerals: it means their fibrous shape. The fibrous shape may appear on silicate minerals, more precisely on inosilicates (amphiboles) and phyllosilicates (chrysotile),⁴ (Picture 1).

Picture 1: Secondary electron image of chrysotile asbestos fibres



⁴ Weiszbürg and Tóth, *Környezeti ásványtan*.

Asbestos minerals are infamous for their health effects: the fibres can get in the human body by inhalation or ingestion, where they can cause mesothelioma and other cancerous diseases.⁵ While there is no consensus about the health effects of the different asbestos minerals, the Hungarian law regulates them uniformly. In spite of this, the police need the identification of the mineral phases.

The identification is based on optical microscopical observations and SEM-EDS micromorphological and elemental analysis. Under stereo microscope, the basic morphological features and the colour can be investigated, while the EDS spectroscopy adds elemental data to every unique fibre.

Beside asbestos, the SEM-EDS system can be used for identifying and comparing mineral grains, for example heavy minerals to each other.

A Case No. 1

An unknown person stole about 1 m³ of stone from a railway bed. A man was suspected with the stealing, whose house was situated next to the railway line and who built a new pavement in his garden. The pavement was made of rocks, which looked similar to the rock of the railbed. 3 rock fragments were collected from the railbed and 3 from the pavement. With the analysis of petrographic thin sections, by both polarizing microscopy and SEM-EDS, it was revealed that the rock fragments were of the same type, probably came from the same quarry, which means that fragments of the pavements and from the railbed had the same origin.

III. Forensic geological applications of bulk elemental analysis

Microanalytical techniques, like SEM-EDS are useful in the analysis of unique particles, but in most cases, elemental analysis of bulk media provides better results.

Soils contain a high percentage of clay minerals. The average particle size of clay minerals is less than 2 μm⁶, which means that individual grains cannot be examined via classical optical microscopic methods (except electron microscopy, but in this case, it cannot provide good results, due to the lower detection limits).

Clay minerals (which are usually phyllosilicates) are well-known for their cation sorption/exchange capabilities. Due to the substitution of elements in the crystal lattice (for example Al³⁺ instead of Si⁴⁺) the charge of the whole crystal loses its equilibrium and becomes capable for the adsorption of positively charged cations⁷. Sorption is also appearing on Fe-Mn oxide and hydroxide minerals⁸. The adsorbed cations can come from both natural and anthropogenic sources (e.g., heavy metal polluted waters⁹, smelters¹⁰ or coal-based power plants¹¹).

⁵ Bernstein et al., 'Final Results from a 90-Day Quantitative Inhalation Toxicology Study Evaluating the Dose-Response and Fate in the Lung and Pleura of Chrysotile-Containing Brake Dust Compared to TiO₂, Chrysotile, Crocidolite or Amosite Asbestos'.

⁶ Helios Rybicka, Calmano, and Breeger, 'Heavy Metals Sorption/Desorption on Competing Clay Minerals; an Experimental Study'.

⁷ Sipos et al., 'Effect of Soil Composition on Adsorption of Lead as Reflected by a Study on a Natural Forest Soil Profile'.

⁸ Sipos et al., 'Sorption of Copper, Zinc and Lead on Soil Mineral Phases'.

⁹ Santoso et al., 'Removal of Heavy Metals from Water by Macro-Mesoporous Calcium Alginate-Exfoliated Clay Composite Sponges'.

¹⁰ Abbaszade et al., 'Lead and Stable Lead Isotopes as Tracers of Soil Pollution and Human Health Risk Assessment in Former Industrial Cities of Hungary'.

¹¹ Zacháry et al., 'Urban Geochemical Mapping for Spatial Risk Assessment of Multisource Potentially Toxic Elements — A Case Study in the City of Ajka, Hungary'.

The exchanged cations in the clay minerals make the soil locally unique, which is ideal for forensic geological purposes where soil samples can represent numerous square kilometres of similar media. This is the reason for the application of highly sensitive elemental analysis.

Nowadays, 3 different elemental analysis methods are used for soil samples at the HIFS: the micro-X-ray fluorescent spectroscopy (μ -XRF, Bruker M4 Tornado), the laser-induced breakdown spectroscopy (LIBS, Applied Spectra J200 Tandem) and the triple-quadrupole inductively coupled plasma mass spectrometry (ICP-MS/MS, Agilent 8900). However, these are different methods with different devices. For instance, the laser of the LIBS spectrometer can be used as a laser ablation sample intake system for the ICP-MS/MS, which can be used for the analysis of solid samples. Otherwise, the ICP-MS/MS is working with liquid samples. All of these can be used for bulk and local elemental analysis with at least 25 μ m resolution, which is far away from the nano-scaled electron microscope, but perfect for soil analysis. Although the quality of the measurements is usually better, it is not affected by morphological effects on flat samples, or even for liquid samples.

In the XRF method, we are radiating the samples with a primer X-ray source, which also emit a secondary X-ray radiation. This secondary radiation can be resolved with a solid-state spectrometer for the identification of the constituent elements and their quantity.

The LIBS method uses a high-energy laser beam for making a micro-plasma from the sample. After the laser impulse, the plasma starts to cool down, emitting light in the process. The resolved light can be used for specifying the qualitative and semi-quantitative composition.

In the ICP-MS/MS, the samples are atomized/ionized in an Ar plasma, then the ion beam has goes through two quadrupole and one octopole analyzers, which are only accessible for specific mass/charge ratio isotopes. This method is very sensitive and can be used for not only for elemental, but also for isotopic analysis. Table 1 contains a short comparison of the methods above.

Table 1: Comparison of different elemental analysis methods in the HIFS

Property	μ -XRF	LIBS	ICP-MS/MS
Solid samples	Yes	Yes	Yes
Liquid samples	No*	No	Yes
Elements can be measured	Na – U	Li – U	Li – U
LOD (ca)	100 ppm	0,1 ppm	50 ppt
Smallest beam diameter	25 μ m	35 μ m	35 μ m
SD of the measurements	Small	Medium-Large	Very small
Difficulty of evaluating the results	Easy	Hard	Easy
Cost of the operation	Cheap	Cheap	Expensive

*The XRF analysis of liquid samples can be achieved in He atmosphere

As can be seen in the table above, all methods have their own advantages and disadvantages, and can be used for forensic geological investigations. because of their high-quality measurements, XRF and/or ICP-MS/MS are used in most cases. However, the ICP-MS/MS, due to its truly quantitative technology, is capable of the analysis of heavy metal-polluted soils¹².

A Case No. 2

In a sexual harassment-related case, the clothes of a young girl and a soil sample was sent for further investigation. Besides optical microscopical and X-ray diffraction methods, the soil

¹² Mosallaei et al., ‘Heavy Metals in Edible Red Soil of the Rainbow Island in the Persian Gulf’.

samples from the jacket of the girl and the soil sample collected in the crime scene were investigated with XRF spectroscopy. The results were compared using Bray-Curtis clustering¹³ in the PAST software¹⁴, which revealed that – together with the 2 other methods – the soil fragments and the soil sample can be derived from the same place. It is worth to mention that in this case, the forensic botanical examinations of moss fragments by Árnika. E. Székely confirmed and completed the geological results.

IV. Forensic applications of X-ray diffraction

The common crystalline phases in geology are the minerals. Minerals have a discrete chemical composition and inner structure: the latter is the so-called crystalline lattice or crystal structure.¹⁵ Most properties of minerals (optical characteristics, cleavage, shape, twinning etc.) originate from the crystal structure and through them the identification can be achieved manually. This process is time consuming, contains subjective factors (e.g., intensity of the colour) which makes the identification difficult. Using instrumental phase analysis, the identification process can be faster and more precise. Raman spectroscopy is a powerful tool for analysing unique mineral grains, however, for complex, multi-phase materials – like soils and rocks – the X-ray diffraction is the most suitable method.

The X-ray diffraction (XRD) is probably the most powerful analytical method for identifying crystalline components. The basics of the method are outside the scope of this publication, but are explained in Moore & Reynolds, 1997¹⁶ and Stadler, 2022¹⁷. At the beginning of 2022, a Bruker D8 Advance X-ray diffractometer arrived to the HIFS, mainly for forensic geological applications.

A Case No. 3

A man was suspected of stealing cement from a construction site. The trousers and the boots of the suspect were sent to the laboratory for further investigations. Both items had greyish, fine-grained material residues on their surfaces, which was suitable for instrumental analysis.

The cement binder has a special mineralogical composition, which can be identified, due to its very fine grain size, with phase analysis only. Using only elemental analysis, however, the difference between the raw materials and the final product cannot be observed.¹⁸

With the X-ray diffraction, it was revealed that the grey material residues on both items contained a huge amount of cement minerals (like *alite*) and calcium-carbonate.

Based on instrumental examinations, we were able to prove that there was a significant amount of cement on the suspect's clothes, thus the suspect could be related to the stealing.

B Case No. 4

Fine grained whiteish powder was confiscated from a young man, which was supposed to be some kind of psychoactive substance. The sample was examined by the Drug Investigation Department of the HIFS and was found negative for narcotics. Although, the elemental composition of the sample contained a high of percentage of chlorine (Cl), which indicated that the item could be some kind salt or salt mixture, but there was no data about the cation and crystal structure.

¹³ Quaak and Kuiper, 'Statistical Data Analysis of Bacterial T-RFLP Profiles in Forensic Soil Comparisons'.

¹⁴ Bezabih et al., 'Forecasting Cereal Crops Production Using Time Series Analysis in Ethiopia'.

¹⁵ Szakáll, *Ásványrendszertan*.

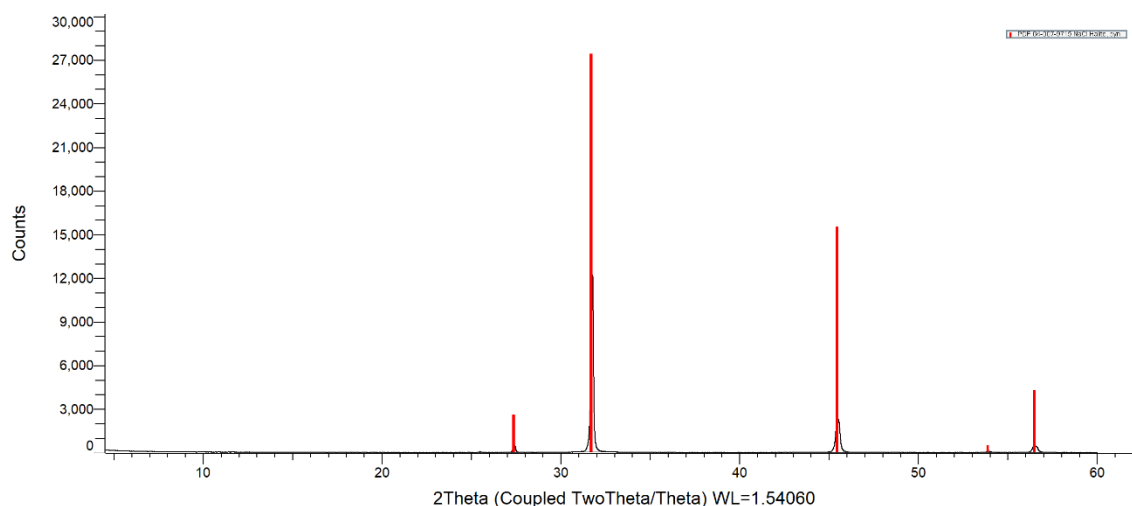
¹⁶ Moore and Reynolds, *X-Ray Diffraction and the Identification and Analysis of Clay Minerals*.

¹⁷ Stadler, 'Röntgendiffrakciós fázisanalitikai alkalmazási lehetőségei a forenzikus geológiai vizsálatokban'.

¹⁸ Gonçaves et al., 'X-Ray Diffraction Study of the Early Hydration of Portland Cements Containing Calcium Carbonate by in-Situ and Ex-Situ Approaches'.

For further analysis, the X-ray diffraction was the most suitable method. Based on the unique crystal lattice parameters, it was confirmed that the sample was salt (NaCl), which is a common substance (Figure 1.)

Figure 1: Evaluated X-ray powder diffraction pattern of NaCl from Case No. 4 (Bruker D8 Advance diffractometer, CuK α radiation, Bragg-Brentano geometry)



In summary, X-ray diffraction produced valuable data in numerous cases where rapid and accurate phase analysis was necessary. In the future, there will be some improvements with the methods, notably quantitative analysis with Rietveld refinement.¹⁹

V. Summary

Forensic geological examinations are constantly evolving due to the newly developed instrumental analytical methods. In the past 10 years, the Hungarian Institute for Forensic Sciences acquired numerous high-quality instruments that are used for soil and mineral analysis. The identification of crystalline materials, such as cement minerals, as well as salts now can be achieved with X-ray diffraction. The accurate comparison of soils using the ICP-MS/MS is a huge advancement from the previous techniques, especially in environmental-related cases. These days, the focus of the development must be on the better and better application of these instruments.

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¹⁹ Zhao and Tan, 'Quantitative and Structural Analysis of Minerals in Soil Clay Fractions Developed under Different Climate Zones in China by XRD with Rietveld Method, and Its Implications for Pedogenesis'.

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Why is Implementing the UNTOC Essential to Combat Environmental Crime?

Orsolya Johanna Sziebig¹

Transnational organised crime seriously impacts the environment, as the correlation was acknowledged in several UN resolutions. The United Nations Convention against Transnational Organized Crime is essential to combat environmental and wildlife crime. The UNTOC was accepted within the United Nations framework and adopted by the General Assembly Resolution 55/25 in November 2000. The convention entered into force in September 2003, following the receipt of the fortieth ratification document. In the last few decades, organised criminal groups have noticed the valuable possibility of exploiting natural resources, thus facilitating the entanglement of transnational organised crime and crimes against the environment. In 2018, the CoP of the TOC accepted the resolution 9/1 entitled „Establishment of the Mechanism for the Review of the Implementation of the United Nations Convention against Transnational Organized Crime and the Protocols”. In 2020, the decision was made to launch the review mechanism. The information gathered by self-assessment questionnaires will provide essential feedback on the national implementation of the UNTOC. In this article, the Author concentrates on the main connection points of transnational organised crime and environmental crime, analysing the importance and role of international instruments, primarily the Transnational Organized Crime Convention, in fighting transnational environmental crime, including wildlife crime.

Keywords: UNTOC, international environmental crime, implementation, review mechanism

I. Introduction

Biodiversity loss, species extinction, and overexploitation have become core keywords for environmental law in the last couple of decades. Species extinction is essentially a natural phenomenon in the world. Still, human activities in recent centuries, particularly in the 20th century, have led to the disappearance of species at rates much higher than the natural extinction rate. Nowadays, humanity must face the fact that more than 50 per cent of the species are threatened with extinction. In 2022, the Living Planet Report published by the WWF showed an average 69 per cent decrease in monitored wildlife populations since 1970.² The leading human-induced causes of biodiversity loss are habitat loss, the adverse effects of invasive species, overexploitation, pollution and global warming associated with climate change.³ One of the leading causes of increased extinction is the economic exploitation of species. Several species of animals and plants are hunted, collected, harvested and exploited for economic purposes. Exploiting the natural environment of 'wildlife', has always been a matter for people and communities. However, the indigenous peoples who believe that the natural world is sacred, have exploited the resources based on sustainability principles. The tribes consider themselves

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² Almond, R.E.A., Grooten, M., Juffe Bignoli, D. and Petersen, T. (Eds.), *WWF (2022) Living Planet Report 2022 – Building a naturepositive society* (Gland: 2022) https://wwflpr.awsassets.panda.org/downloads/lpr_2022_full_report.pdf.

³ 'Five drivers of the nature crisis' *UNEP*, September 5, 2023, <https://www.unep.org/news-and-stories/story/five-drivers-nature-crisis>.

as one element of the natural world, and today, we can call these communities the leaders of conservationists.⁴ The problem began when the “taking and harvesting” exceeded the sustainable level, so the living world could no longer reproduce itself. In economic terms, the demand became more significant than the supply. However, while a shortage on a production line can be replaced within a few months or even a few days, once a living organism disappears from the Earth, it never returns. Extinction is a natural phenomenon, but as it was earlier referred to, extinction rates have been unprecedented in the last few decades. Because of these problems, the international community realised the need to create standards that protect biodiversity and species. Since the 1960s, the international community has been discussing how to regulate trade in wildlife products with the urging support of the civil sector. The most important tool of international law is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (hereafter CITES), signed in 1973 in Washington and entered into force in 1975.

In this article, the Author provides an insight into the primary correlation of wildlife crime, species conservation, international law and the role of the Convention against Transnational Organised Crime. Firstly, the definition of transnational environmental crime is analysed. Then, the acceptance of the UNTOC and its influence on the global fight against transnational organised crime is highlighted. Furthermore, the recently accepted review mechanism and the states’ implementation process are mentioned. Finally, conclusions are drawn, including the main shortcomings of the international treaty and the review mechanism.

II. The connection of wildlife crime and transnational organised crime

The CITES can be labelled as a well-functioning treaty system with almost universal participation.⁵ On the other hand, wildlife crime highly influences conservation efforts and the successful enforcement of trade regulations. Meanwhile, many acts that harm wildlife remain within the territory of individual states (such as poaching), and the rise of organised crime groups in environmental crime poses new challenges to law enforcement agencies. Illicit wildlife trade ensures that wildlife products and specimens, often also obtained illegally, reach the final buyer. Therefore, it is essential to identify the link between transnational organised crime and wildlife crime, particularly illegal trade, and assess the relevant international instruments.⁶

In the scope of the article, wildlife crime is defined as the following:

‘Wildlife crime should be understood as any act that has a negative impact on wildlife and that is subject to an adverse legal consequence under national legislation. The latter acts may appear as gathering or taking from the wild, acquiring, possessing or processing wildlife species and/or products. Wildlife crime includes illegal wildlife trade, importation into or exportation from the territory of a State by breaching the relevant regulations. Wildlife includes all species of wild fauna and flora, including all forms of their occurrence and coexistence. Wildlife crime is based on the application of criminal law under national legislation. Their characteristics include a transnational organised crime element and a propensity to corruption.’⁷

⁴ ‘Indigenous people and nature: a tradition of conservation’, *UNEP*, April 26, 2017, <https://www.unep.org/news-and-stories/story/indigenous-people-and-nature-tradition-conservation>.

⁵ ‘Zimmerman, M. E., The black market for wildlife: combating transnational organised crime in the illegal wildlife trade,’ *Vanderbilt Journal of Transnational Law*, no. 36 (2003), 1657–1689.

⁶ ‘Sziebig, Orsolya Johanna, A vadvilági bűncselekmény mint a transznacionális szervezett bűnözés egyik formája,’ *FORUM: Acta Juridica et Politica*, no. 8:1 (2018), 347-364.

⁷ Sziebig, Orsolya Johanna, *Vadvilág végveszélyben, A vadvilággal kapcsolatos büntetendő cselekmények nemzetközi és uniós jogi vonatkozásai*, Iurisperitus (Szeged:2021) 43.

Transnational organised crime has long been a concern for criminologists. However, recent research has also focused on new areas of organised crime, such as trafficking in natural resources and wildlife products. Little attention has been paid to the black-market trade in endangered wildlife products for a long time despite an annual turnover of around USD 6 billion.⁸ Wildlife crime, including illegal wildlife trade, are areas that are increasingly becoming a focus of international interest. Wildlife crime threatens the economy, future development opportunities and security of individual states.⁹

Over the last decades, organised criminal groups have realised the potential value of exploiting natural resources, thus facilitating the intertwining of transnational organised crime and environmental crime. The involvement of organised criminal groups in crimes against the environment, particularly wildlife trafficking, is a significant challenge for national authorities. In a broader sense, all forms of crime against the environment have an organised criminal element. Organised crime is hidden by its very nature, so traditional decision-making forms are often poorly applied. Organised crime indicators take various forms, and, in many cases, are adapted to the type of activity. When examining the conceptual issues of wildlife-related offences, it is essential to clarify the definition of cross-border organised crime. There is a consensus on the characteristics of organised crime itself, which most groups involved in such activities share. The objective of organised crime groups is no different from that of other businesses operating on the market: to maintain a certain market share and secure demand for a certain product or service. Transnational organised crime requires a high degree of organisation and a propensity for violence and corruption. When organised crime becomes transnational by crossing borders and operating in other states, criminal groups can exploit the difficulties of often socially and economically weakened states.¹⁰ Transnational crime refers to acts where the acquisition, transport and distribution of goods occur across international borders or have direct or indirect effects in more than one country. Consequently, criminal action must also be taken in more than one state, usually with the help of states and/or international law enforcement agencies and international organisations.¹¹ Cross-border organised crime is considered one of the greatest threats to humanity in the current century. For this reason, several international organisations, particularly the United Nations and its relevant organisations, are working to develop targeted and effectively implemented programmes to halt the rise of transnational organised crime and dismantle existing organised crime groups.¹²

The concept of transnational organised crime in the literature generally distinguishes three main elements: the continuity of the act, the practice of corruption and the propensity to violence. Other definitions also mention the involvement of many persons, the pursuit of crime as an objective; cross-border operations in response to the demand for illicit products, the ability to acquire and possess significant resources, and high and rapid profit-making. Most organised crime groups that commit crimes against the environment have the above characteristics. The other characteristics are the following: engaging in cross-border illegal operations, often in response to a demand for illegal goods; encouraging government officials to engage in corruption, particularly by exploiting economically weakened countries; possessing significant resources; a hierarchical, rigid or compartmentalised organisational structure governed by

⁸ 'Warchol, Greg, L.Zupan, Linda and L.Clack, Willie: Transnational Criminality: an analysis of the illegal wildlife market in Southern Africa.' *International Criminal Justice Review*. vol 13 (2003) 1-27. <https://doi.org/10.1177/105756770301300101>.

⁹ 'Wildlife crime,' *UNODC*, 2020, <https://www.unodc.org/unodc/en/environment-climate/wildlife.html>.

¹⁰ 'The Globalisation of Crime. A Transnational Organised Crime Threat Assessment,' *UNODC*, United Nations Publications, (Vienna:2010) 25-39.

¹¹ 'International Cooperation in Combating Transnational Crime, Report on the 6th Session,' *ECOSOC, Commission on Crime Prevention and Criminal Justice*, E/CN.15/1997/21., 1997, 126-134.

¹² 'UN Press Release,' GA/SHC/3529 October 18, 1999. <https://press.un.org/en/1999/19991019.gashc3531.doc.html>.

internal rules of order, which protects the leadership, which performs organisational, administrative and ideological functions; the operation of front companies and businesses to launder the proceeds of illegal activities, money laundering; the willingness to participate in a wide range of activities and the professionalism of those involved; the maximum profit objective achievable in the shortest possible time; prolonged operational activity; organising international operations with people from several nations.¹³

A The definition of transnational environmental crime

Several reports emphasised the connection between wildlife crime and transnational organised crime. A report from 2016 by the Secretary-General draws the attention of states to the ratification of international conventions against organised crime and corruption, which is considered a crucial step in the fight against organised crime.¹⁴ In the communication of the United Nations' main organs – especially the resolutions of the General Assembly and the Economic and Social Council – the member states are called for the ratification and implementation of the UNTOC.¹⁵ The UN Committee on Crime Prevention and Criminal Justice addressed illicit international trafficking in 2007, focusing specifically on forest products.¹⁶ In May 2014, a follow-up to that resolution was adopted, with a resolution on strengthening targeted crime prevention and criminal justice response.¹⁷ However, there is a general reference to the need for States to do their utmost to fight organised crime and implement the analytical toolkit on wildlife and forest crime. The United Nations Office on Drugs and Crime stressed that wildlife crime is closely linked to corruption, money laundering, other violent crimes and a clear pattern of cross-border organised crime.¹⁸

Transnational environmental crime emerged in the academic literature in the last couple of decades and also appeared in public policy.¹⁹ There is no universally accepted definition for transnational environmental crime in international law, so the authors have to rely on the terms of the UNTOC. Transnational environmental crime can be defined as 'cross-border trading of species, resources, waste or pollutants in violation of prohibitions or regulatory regimes established by multilateral environmental agreements, or in contravention of national laws.'²⁰ Transnational environmental crime refers to criminal natural-resource-related activities that cross national borders and harm the environment, including illicit wildlife trafficking, illegal fishing, electronic-waste dumping, water theft; illicit markets in ozone-depleting substances, illegal logging and mining. The negative effects of transnational environmental crime (TEC) is well-known. Firstly, TEC can lead to environmental and health insecurity and illegal trafficking facilitates the spread of zoonotic pathogens. TEC often occurs in low-income countries and conflict zones, boosting poverty and highly influencing the implementation of sustainable

¹³ 'Guymon, Carrielyn Doningen, International Legal Mechanisms for Combating Transnational Organized Crime: The Need for a Multilateral Convention,' *Berkeley Journal of International Law*, no. 53. (2000) 73-85.

¹⁴ Report of the Secretary-General, A/70/951, 'Tackling illicit trafficking in wildlife,' June 16, 2016.

¹⁵ For example General Assembly Resolution A/RES/71/326 *Tackling illicit trafficking in wildlife*, September 28, 2017; ECOSOC Resolution 2011/36 on *Crime prevention and criminal justice responses against illicit trafficking in endangered species of wild fauna and flora*, July 28, 2001.

¹⁶ Resolution 16/1, *International cooperation in preventing and combating illicit international trafficking in forest products, including timber, wildlife and other forest biological resources*, April 7, 2007.

¹⁷ Resolution 23/1 (2014 májusa) *Strengthening a targeted crime prevention and criminal justice response to combat illicit trafficking in forest products, including timber*, May 2014.

¹⁸ Wildlife and forest crime,' UNODC, <https://www.unodc.org/roseap/en/what-we-do/toc/wildlife-forest-crime.html>.

¹⁹ Elliott, Lorraine (ed.) 'Transnational environmental crime in the Asia-Pacific: A workshop report', *Canberra: Department of International Relations*, The Australian National University, 2007.

²⁰ Elliott, Lorraine, Schaedla, William H., 'Transnational environmental crime: excavating the complexities – an introduction,' in *Handbook of Transnational Environmental Crime*, ed. by Elliott L., Schaedla W. (Routledge, 2016) 3. <https://doi.org/10.4337/9781783476237.00009>.

development goals. The ecological and social outcomes, such as economic dislocation and the loss of developing opportunities, are devastating to already marginalised communities.²¹

III. Short history of the UNOTC, its main definitions and importance

Transnational organised crime poses a huge threat to national security. As a result, states are trying to combat this phenomenon through international, regional and local legislation and programming. Among international conventions, the article put the UN Palermo Convention in the centre of attention. However, many conventions have also been drawn up in response to transnational organised crime.²² The United Nations Convention against Transnational Organised Crime was drawn up within the framework of the United Nations, adopted by the General Assembly on 15 November 2000 by resolution 55/25.²³ The Convention entered into force in September 2003, following the receipt of the fortieth instrument of ratification. The TOC has 191 state parties²⁴ and Hungary has promulgated it by Act CI of 2006. The main purpose of the Convention is to prevent, detect, investigate and prosecute serious crime when the offence is of an international nature and involves an organised criminal group.²⁵

The Convention against Transnational Organised Crime defines in detail the offences it applies to but does not specify what transnational organised crime means. Furthermore, it does not contain a list of the offences falling within its scope, so the Convention should remain applicable in the event of a change of circumstances. According to this definition, transnational organised crime includes all severe crimes with an international dimension and motivated by profit. The term covers the offences that are committed in more than one State and those that take place in one State but are planned or controlled in another. The definition also included crimes committed by groups operating in more than one State, and crimes committed in one State that substantially affects another State.²⁶ In addition, the Convention sets out precisely certain definitions of transnational organised crime. Serious crime is defined as ‘shall mean conduct constituting an offence punishable by a maximum deprivation of liberty of at least four years or a more serious.’²⁷

An offence is considered to be international if it is international in character, if

‘(a) it is committed in more than one State;

(b) it is committed in one State but a substantial part of its preparation, planning, direction or control takes place in another State;

(c) it is committed in one State but involves an organized criminal group that engages in criminal activities in more than one State; or

(d) it is committed in one State but has substantial effects in another State.’²⁸

It also defines an organised criminal group as

²¹ ‘Meredith L. Gore at all. Transnational environmental crime threatens sustainable development,’ *Nature Sustainability*, vol. 2, September 2019. 784-786.

²² For example the following conventions concern organised crime. The United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances UNTS 1582 (p.95) 1988. (1990.); Council of Europe Convention on Laundering, Search, Seizure and Confiscation of the Proceeds from Crime and on the Financing of Terrorism. 2005 Council of Europe Treaty Series - No. 198, OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions 1997 (1999).

²³ UNTS, vol. 2225, 209. p. 2000. (2003.)

²⁴ ‘UN Treaties, UNTOC’ https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XVIII-12&chapter=18&clang=en.

²⁵ Article 3. para. 1 b).

²⁶ ‘Transnational organised crime,’ *UNODC*, <https://www.unodc.org/ropan/en/organized-crime.html>.

²⁷ UNTOC, Article 2. (b).

²⁸ UNTOC, Article 3. para 2. a)-d).

‘shall mean a structured group of three or more persons, existing for a period of time and acting in concert with the aim of committing one or more serious crimes or offences established in accordance with this Convention, in order to obtain, directly or indirectly, a financial or other material benefit.’²⁹

Three additional protocols to the Convention against Transnational Organised Crime have been adopted, the first on trafficking in human beings (in particular women and children),³⁰ the second on smuggling of migrants by land, sea and air,³¹ and the third on illicit arms production and trafficking.³²

A The Convention’s implementation and review mechanism

Article 32 of the Transnational Crime Convention requires the establishment of a Conference of the Parties to the Convention (CoP) to ‘improve the capacity of States Parties to combat transnational organised crime and to promote and review the implementation of this Convention.’³³ The primary role of the CoP is to agree upon mechanisms for achieving the goals of the Convention, for example, training and technical assistance, economic development and technical assistance, prevention, and cooperation with international and regional organisations and non-governmental organisations. Furthermore, it reviews the Convention's implementation and recommends improving the member states’ domestic acts. Information is needed from the member states to evaluate the implementation procedure.³⁴ One of the main shortcomings of the Convention is that establishing such an implementation review mechanism required a long time.

After more than twenty years of the adaption of the Convention, only a little is known how the member states are implementing the UNTOC. At the end of the 2000s the Conference of the Parties started to shift its attention to the review mechanism. The state parties disagreed on how civil society should participate in the review mechanism. Finally, the Conference of the Parties agreed to create the review mechanism in October 2018, spending more time negotiating the establishment of the treaty monitoring body than they had spent on adopting the treaties. One of the main concerns was that the treaty monitoring body would deal with ‘sensitive operational information’ concerning ongoing investigations. On the other hand, monitoring bodies usually concentrate on legislation and policies, rather than ongoing investigations. After the acceptance of the UNTOC, questionnaires were sent to the states parties to gather information about the implementation process, but only half of the state parties completed them (between 2004 and 2006). Another issue was that after 2007 a computer based self-assessment checklist was introduced, but it was available only in the official UN languages.³⁵

Finally, the Conference of the Parties to the United Nations Convention against Transnational Organized Crime held its ninth session on 15-19 October 2018 and accepted the review mechanism for the implementation of UNTOC and its Protocols by adopting resolution 9/1 entitled Establishment of the Mechanism for the Review of the Implementation of the United

²⁹ UNTOC, Article 2. (a).

³⁰ Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime.

³¹ Protocol against the Smuggling of Migrants by Land, Sea and Air, supplementing the United Nations Convention against Transnational Organized Crime.

³² Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their parts and Components and Ammunition, supplementing the United Nations Convention against Transnational Organized Crime.

³³ UNTOC, Article 32. para 1.

³⁴ ‘Clark, Roger S. The United Nations Convention against Transnational Organized Crime, *Wayne Law Review*, vol. 50. no. 1., (Spring 2004),’ 161-184.

³⁵ ‘Cecily Rose, The Creation of a Review Mechanism for the UN Convention Against Transnational Organized Crime and Its Protocols,’ *American Journal of International Law*, no. 114(1), 51-67. <http://doi.org/10.1017/ajil.2019.71>.

Nations Convention against Transnational Organized Crime and the Protocols thereto.³⁶ The Conference of the Parties to UNTOC adopted, at its tenth session held in Vienna from 12 to 16 October 2020, resolution 10/1 entitled Launch of the review process of the Mechanism for the Review of the Implementation of the United Nations Convention against Transnational Organized Crime and the Protocols thereto.³⁷ In resolution 10/1, the Conference among other details adopted the self-assessment questionnaires for the review of the implementation of the Convention and the Protocols. Also, the guidelines for conducting the country reviews and the blueprints for the lists of observations and their summaries were accepted. Furthermore, the CoP decided to launch the first review phase of the review process under the thematic clusters of UNTOC and the Protocols, and multi-year work of the mechanism appended to the Procedures and rules of the mechanism.³⁸

The United Nations Convention against Transnational Organised Crime entered into force twenty years ago. Nowadays, the first review mechanism has been launched and it is yet to see, how the state parties will complete the questionnaires. As it is the beginning of September 2023, more than 60 per cent, 130 reviews have not been started.³⁹ In accordance with the rules and procedures, the mechanism is structured on four thematic clusters of articles based on their subject matter: Criminalization and Jurisdiction; International cooperation, mutual legal assistance and confiscation; Prevention, technical assistance, protection measures and other measures; Law enforcement and the judicial system.⁴⁰

IV. Final remarks

Transnational environmental crime is one of the most significant threats to conservation efforts. TEC appears in many forms, including wildlife crime. In the following, the Author briefly summarises the challenges that wildlife crime poses to states, particularly their customs and enforcement systems. First of all, the exploitation of natural resources generates significant state revenue. For example, some developing states are rich in minerals and precious metals, but because of illegal mining, these are not used for the country's development programmes. Furthermore, some members of customs and enforcement agencies are prone to corruption, so legal standards are not implemented and enforced. Therefore, the actual scale of illegal trade is difficult to estimate. So, illegal exploitation and waste of natural resources make future development opportunities impossible to realise. As stated before, biodiversity loss already seems unstoppable, with a significant proportion of species facing the possibility of permanent extinction. Wildlife crime, including illegal trade, is hidden under legitimate trade. However, with the infiltration of transnational organised crime, additional risks have emerged for states, such as the negative impacts of wildlife crime. It is proved that organised criminal groups use the proceeds of wildlife crime to finance additional activities that are dangerous to the country's security. In addition, organised criminal groups have established networks that easily allow the smuggling and transcontinental transport of wildlife specimens or products.⁴¹ From some examples, it is detectable that the profits are explicitly used to finance terrorist acts. Organised

³⁶ Resolution 9/1,

<https://www.unodc.org/documents/treaties/UNTOC/Review%20Mechanism/Resolution/English.pdf>.

³⁷ Resolution 10/1,

<https://documents-dds-ny.un.org/doc/UNDOC/GEN/V20/063/59/PDF/V2006359.pdf?OpenElement>

³⁸ UNTOC Review mechanism, *UNTOC*,

<https://www.unodc.org/unodc/en/organized-crime/intro/review-mechanism-untoc/home.html>.

³⁹ *Ibid.*

⁴⁰ General Timeline, UNODC,

<https://www.unodc.org/unodc/en/organized-crime/intro/review-mechanism-untoc/timeline.html>.

⁴¹ See 'Zsigmond, Csaba, Bűnszervezetek a nemzetközi illegális állat- és növénykereskedelemben,' *Magyar Rendészet*, vol. 22, no. 1. (2022) 195-223.

crime groups involve locals and hunters to poach animals. Poachers often have better weapons and resources than the state armed forces. Finally, smuggling activities involving the mixed transport of certain illegal products – for example, weapons, drugs and wildlife species/products – are becoming increasingly common. Due to the aforementioned reasons, it is challenging to estimate the accurate scale of each activity.⁴²

The United Nations Convention against Transnational Organised Crime was adopted in 2000 and entered into force twenty years ago. In the last two decades, the member states have been implementing the regulations of the Convention, although, there is no reliable information concerning the enforcement. The CoP adopted the new review mechanism, but the process will take almost a decade to complete, and most state parties have not even started to fulfil the questionnaires. Even if the mechanism is completed successfully, without the availability of the national evaluation results, only a few open data would be accessible for academic research. The usefulness of the review mechanism is still questionable. Meanwhile, the Convention is explicitly treated as one of the critical instruments of the fight against wildlife crime, so high-level enforcement and successful implementation are needed.

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⁴² Sziebig, *Vadvilág végveszélyben, A vadvilággal kapcsolatos büntetendő cselekmények nemzetközi és uniós jogi vonatkozásai*, 46-51.

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Forced Migration from Ukraine to the EU since the Outbreak of the Russian-Ukrainian war – with Focus on Hungary

Urbán Ferenc¹

The article analyses the changing characteristics of migration from Ukraine to Hungary looking at the period between 2010 and 2023. Migration from Ukraine has undergone a number of changes during the period under study due to the socio-economic processes in Ukraine and the war that has broken out in the meantime. Of course, changes in the legal and economic characteristics of Hungary have also had an impact on migration between the two countries. The Council of the European Union has applied the Temporary Protection Directive (2001/55 EC Directive) since 4 March 2022. Since then the European Commission organises the collection and publication of data on temporary protection. The Commission has both activated the collection of statistics on persons granted temporary protection, as provided for in Article 4 of Regulation 862/2007 EC, and asked Member States to voluntarily accelerate the collection of data, with the first reference month being April 2022. The vast majority of Member States comply with the statistical data collection although with varying degrees of data coverage. The data show that migration from Ukraine has been one of the most important factors influencing the overall migration process in Hungary.

Keywords: migration, forced migration, asylum applications, temporary protection, naturalization

I. Introduction

The press informs us daily about the latest developments in the Russian-Ukrainian war. At the time of writing (end of September 2023), the war has been going on for more than 1.5 years, starting with Russia's attack on Ukraine on 24 February 2022, which some say was unexpected, while many experts have subsequently argued was predictable.

There were several signs of the start of the war, ranging from the deployment of forces near the Russian-Ukrainian border to the disruption of gas supplies from Russia to Europe, all of which could only have been signs of a military exercise, and which were intended to increase Russia's potential for blackmail. On 21 February 2022, Russian President Vladimir Putin arbitrarily recognised the separatist-controlled areas of Ukraine, including Ukraine's Luhansk region and the Donetsk region, as independent states and sent Russian military troops to these regions. This move by President Vladimir Putin was preceded by the Russian Duma's vote on 15 February 2022 to recognise these areas of Ukraine as independent.

Subsequently, on 24 February 2022, the Russian Federation launched a military offensive against Ukraine from several directions. The recognition of the Luhansk and Donetsk regions as independent states and the invasion of Ukraine was unanimously condemned by the European Union.

Since the outbreak of the war, one fourth² of Ukraine's population has been displaced, making forced migration caused by the Russian-Ukrainian war the biggest humanitarian disaster in the world today (as of September 2023). More than 11 Million Ukrainians have been forced to leave their homes and a further Millions of people are in places they cannot leave due to

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² UNHCR Operational Data Portal. <https://data2.unhcr.org/en/situations/ukraine>

increased security risks or destruction of infrastructure. According to data available on 20 September 2023, almost 6.2 Million Ukrainians have sought refuge outside Ukraine, and the limited success of the war in Ukraine has also led to a significant return to Ukraine since last year as well. As of 20 September, nearly 2.5 Million people³ had sought refuge in countries neighbouring Ukraine. The war has highlighted the migration flows from Ukraine to Hungary too and, in particular, their markedly changing nature since 2010.

Since the end of February 2022, the European Council and the Council of the European Union have been meeting regularly on the issue of the Russia-Ukraine war, with EU leaders repeatedly calling on the leaders of the Russian Federation to end their aggression against Ukraine and restore Ukraine's territorial integrity, sovereignty and independence, to no avail. A total of eleven sanctions packages against the Russian Federation have been adopted since 23 February 2022.⁴

The first round of sanctions packages concerned members of the Russian Duma, as well as Vladimir Putin himself, Russian Foreign Minister Sergei Lavrov and Russia's economic relations with the EU. Subsequent sanctions packages have included banning Russian flagged aircraft from the EU, restrictions on the use of the international interbank code SWIFT by Russian banks, and restrictions on the import of certain products (e.g. iron) from Russia into the EU. In June 2023 the 11th series of sanctions was introduced, the Council adopted new restrictive measures against Russia. The agreed package includes amongst others, measures to strengthen bilateral and multilateral cooperation with third countries to impede sanctions' circumvention and to prohibit the transit of goods and technology via Russia.⁵

A Main source of migration from Ukraine to Hungary

The most significant source of migration from Ukraine to Hungary is the Hungarian minority population of Transcarpathia, according to the data of the first and last Ukrainian census in 2001, 151.5 persons in Transcarpathia declared themselves as Hungarians - 158.7 thousand of them native Hungarians - which accounted for 96.8% of the total number of Hungarians⁶ in Ukraine, i.e. 156.6 thousand. During the relatively peaceful period of the 2000s, the number of Hungarians in Transcarpathia decreased by about 10 000⁷, while other authors estimate the decrease to be almost double, at 15-20 000⁸, the difference between the two figures being due to the difficulty of counting migration statistics. According to data from 2017, the number of Hungarians living in Ukraine was 130,000.⁹

However, Hungarians in Ukraine are only one of the main factors of international migration from Ukraine to Hungary. It can be said, that Ukrainian Hungarians have been the most significant driving force behind migration between the two countries, as in their case the geographical and cultural distance was not so great as to make geographical mobility and

³ Ukraine Situation Flash Update. <https://data.unhcr.org/en/situations/ukraine>

⁴ Council of the European Union Response. <https://www.consilium.europa.eu/en/policies/eu-response-ukraine-invasion/>

⁵ Council of the European Union Response.

⁶ Tátrai, Patrik, Molnár, József, Molnár, D. István, Kovály, Katalin, Eröss, Ágnes, Ferenc, Viktória, and Rákóczi, Krisztián. (2018). Impact of migration processes on the number of Hungarians in Transcarpathia. (A migrációs folyamatok hatása a kárpátaljai magyarok számának alakulására). *Metszetek-Társadalomtudományi Folyóirat*, 7(1), 5-29.

⁷ Molnár, József, Molnár, D. István (2005). Population of Transcarpathia including the Hungarian minority in light of the census and population statistics. (Kárpátalja népessége és magyarsága a népszámlálási és népmozgalmi adatok tükrében). Kárpátaljai Magyar Pedagógusszövetség Tankönyv-és Taneszköztanácsa. Beregszász, 2005.

⁸ Kincses Áron, Karácsonyi Dávid (2010). Impact of emigration on the Hungarian population in Transcarpathia. (Az elvándorlás hatása a kárpátaljai magyarság helyzetére). *Földrajzi közlemények* 134, (1) 31-43.

⁹ Kovács Csaba, Rovács Barna. (2021). Hungarians in the Carpathian Basin with regard of the population census data. (Magyarok a Kárpát-medencében – a népszámlálási adatok tükrében). *Századvég*, 2021. (3) 61-83.

integration difficult. Since 2010 there have been a number of legislative and geopolitical changes that have had an impact on this migration and have made the country an attractive destination for migrants from more distant regions of Ukraine. The last decade has brought significant changes in the characteristics of international migration from Ukraine to Hungary¹⁰. On the one hand, the size of the Ukrainian community in the latter country more than doubled in the 2010s, growing faster than in Europe as a whole (244% vs. 114%)¹¹. On the other hand, together with geopolitical developments in the region and Hungarian labour market and kin-state policies, migration flows from Ukraine have undergone a significant transformation in terms of their ethnic and socio-demographic composition¹².

B Drivers of Ukrainian migration

Two groups of factors influencing migration from Ukraine can be distinguished, one of them being external events from Ukraine, which can be defined as a pull factor according to classical migration theory. The other factor can be classified as a push factor, which typically takes the form of some type of socio-economic factor, such as a political change, a war event or an environmental disaster.

In 2010, the Hungarian Parliament amended the Act LV. of 1993 on Hungarian Citizenship¹³, introducing the possibility of simplified naturalisation, and the geopolitical events since the end of 2013, first the political-social changes related to Euromaidan, and then in 2014 the annexation of Crimea to Russia, the war in Eastern Ukraine and the related economic downturn, have had a significant impact on international migration from Ukraine.

Even before the events of Euromaidan, Ukraine's economic performance had not reached its pre-1991 level, stagnating at 60-65%¹⁴ in 2014, and Ukraine is the second poorest country in Europe after Moldova in terms of GDP per capita¹⁵. Ukraine's western neighbours have also become the main destination countries for emigration, as social and cultural capital and the economic benefits derived from it play a more important role in Ukrainians' migration decisions than individual profit maximisation¹⁶.

For Ukraine, the pull factor is the change in the structure and performance of the Hungarian economy between 2013 and 2021. During this period, the Hungarian labour market showed signs of the labour shortage typical of Western European countries and to counteract this, the government first allowed the preferential employment of nationals of neighbouring countries in certain shortage occupations, and later extended this possibility to other third-country nationals (according to Article 15 (1) 26 of Government Decree 445/2013 (28.11.), the occupations in which third-country nationals may be employed without a permit were defined)¹⁷. In the early 2020s, however, migration processes turned upside down. COVID-19

¹⁰ Malynovska, Olena (2020). International Migration of Ukrainian Population Since Independence. In: Denisenko, Mikhail, Strozza, Salvatore, Light, Matthew. (eds.) *Migration from the Newly Independent States: 25 Years After the Collapse of the USSR*. Springer, 169-186.

¹¹ Based on United Nations POP/DB/MIG/Stock/Rev.2020. <https://www.un.org/development/desa/pd/content/international-migrant-stock>

¹² Gödri, Irén, Csányi, Zoltán. (2020). Immigration from the Former Soviet Union to Hungary: Economic Mobility Rooted in Historical Links and Ethnic Ties. In: Denisenko, Mikhail., Strozza, Salvatore. & Light, Matthew. (eds.) *Migration from the Newly Independent States: 25 Years After the Collapse of the USSR*. Springer, 483-510

¹³ Act LV of 1993 on Hungarian citizenship, <https://net.jogtar.hu/jogszabaly?docid=99300055.tv>

¹⁴ Kincses, Áron (2020). Geographical networks of international migration in the Carpathian Basin. (A nemzetközi vándorlás területi hálózatai a Kárpát-medencében). 2011–2017. KSH, Budapest 2020.

¹⁵ <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?end=2021&locations=UA-MD-AL-GE-AM&start=2014>

¹⁶ Kincses, Áron (2020). Geographical networks of international migration in the Carpathian Basin. (A nemzetközi vándorlás területi hálózatai a Kárpát-medencében).

¹⁷ Hungarian Gazette 2016/30., (Hivatalos Értesítő 2016/30.), <http://www.kozlonyok.hu/kozlonyok/index.php?m=2&p=0200&k=12&y=2016>

resulted in a negative migration balance in the migration flows of Ukrainians (for the first time since migration flows have been measured in Hungary). Although the second year of the COVID-19 showed signs of a recovery of the pre-plague migration patterns, the Russian-Ukrainian war brought a different level of uncertainty about the future of the migration system.

II. Three determinants of Ukrainian migration to Hungary

A Factors affecting migration: Introduction of simplified naturalisation

The introduction of simplified naturalisation, the facilitation of their access to employment and the war in Ukraine were the main factors influencing migration from Ukraine to Hungary during the period under review.

The Act LV of 1993 on Hungarian Citizenship allowed for preferential naturalisation in its amended §4. In principle, Hungarian citizenship can be acquired by birth or later, after birth, by naturalisation. Act XLIV of 2010 introduced significant changes in the regulation of the acquisition of Hungarian citizenship. Under the Act, Hungarian citizenship can be acquired by naturalisation or by re-naturalisation. Naturalised persons are those who acquired Hungarian citizenship when they were born as foreign citizens, and recon naturalised persons are those whose former Hungarian citizenship has been terminated and who have become Hungarian citizens again. The simplified naturalisation procedure introduced under the Act from 1 January 2011 allows foreign citizens with Hungarian ancestry to acquire Hungarian citizenship without having to establish Hungarian residence. The legislative changes have also facilitated the naturalisation of some foreigners living in Hungary.

B Employment situation in Hungary

The labour shortage rate as a share of employment has risen from 1.5% to 2.5% in the competitive sector at the level of the economy. Signs of labour shortages in the Hungarian economy started to emerge after 2015 and the Hungarian government has taken measures to alleviate them, first by significantly easing the rules for nationals of neighbouring countries to work in Hungary.

A significant change in the employment of Ukrainian citizens in Hungary and thus in their residence in Hungary occurred in when, in order to alleviate the labour shortage in Hungary, the Ministry for National Economy issued a Notice¹⁸ simplifying the rules for the employment of third-country nationals from neighbouring countries by defining the scope of professions that may be exempted from the permit requirement.

The number of workers of non-Hungarian nationality, including Ukrainian nationals, has visibly increased in the statistics after 2016. In 2022, the number of Ukrainian citizens residing in the country for employment purposes is nine times higher than in 2011, increasing from 3,500 to 27,000 in the period in question. A particularly significant increase can be observed in 2017 and 2018.

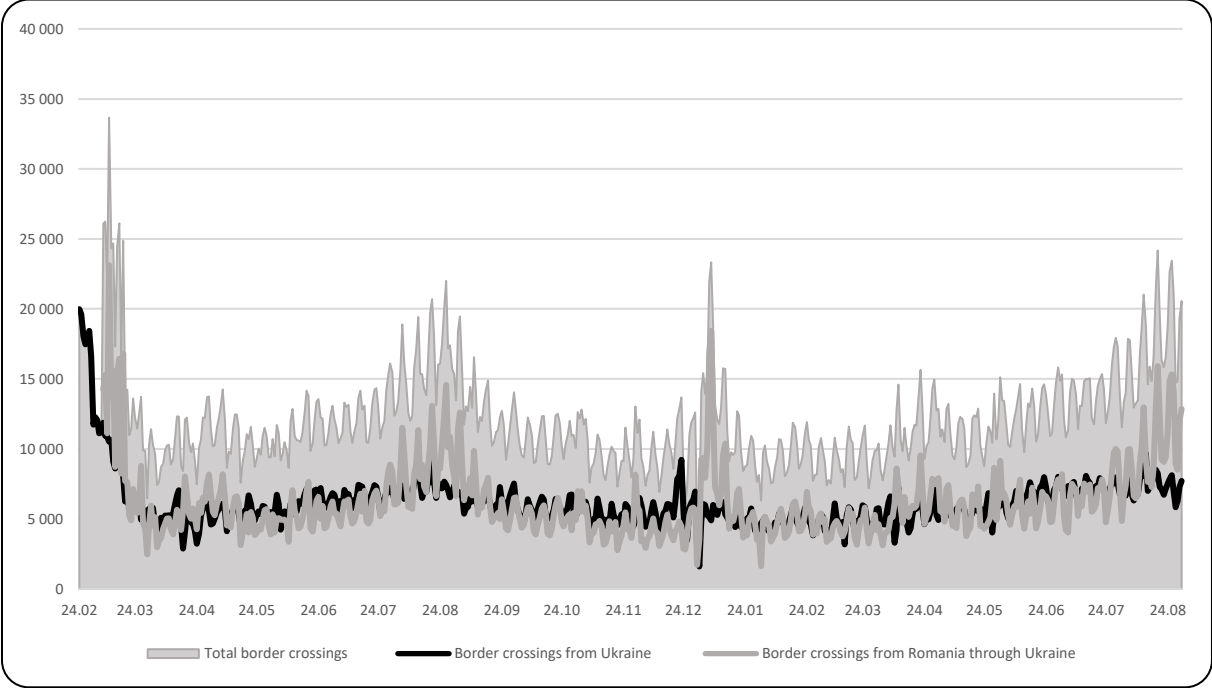
C The impact of the war in Ukraine on migration flows

Since the outbreak of the Russian-Ukrainian war, migration experts are no longer in a position to develop sound theories on the Hungarian-Ukrainian migration system. Although sporadic statistical data on related issues such as daily border crossings and the number of applications for temporary protection in Hungary are available, they lack the depth necessary to draw more far-reaching conclusions.

¹⁸ Notice of the Ministry of National Economy (NGM Közlemény), https://net.jogtar.hu/getpdf?docid=A16K0302.NGM&targetdate=ffffff4&printTitle=NGM+k%C3%B6zlem%C3%A9ny&referer=http%3A/net.jogtar.hu/jr/gen/hjegy_doc.cgi%3Fdocid%3D00000001.TXT

Figure 1 shows daily border crossings from Ukraine based on the Hungarian Police border traffic statistics. From 24 February 2022 to 31 August 2023, there were a total of 6.7 Million border crossings from Ukraine, 3.4 Million across the Ukrainian-Hungarian border and 3.3 Million across Romania (originating from Ukraine). After the very high numbers in the first weeks of the war (peak of 33.6 thousand crossings on 11 March), the number of daily entries stabilised at around 10 – 15 thousand.

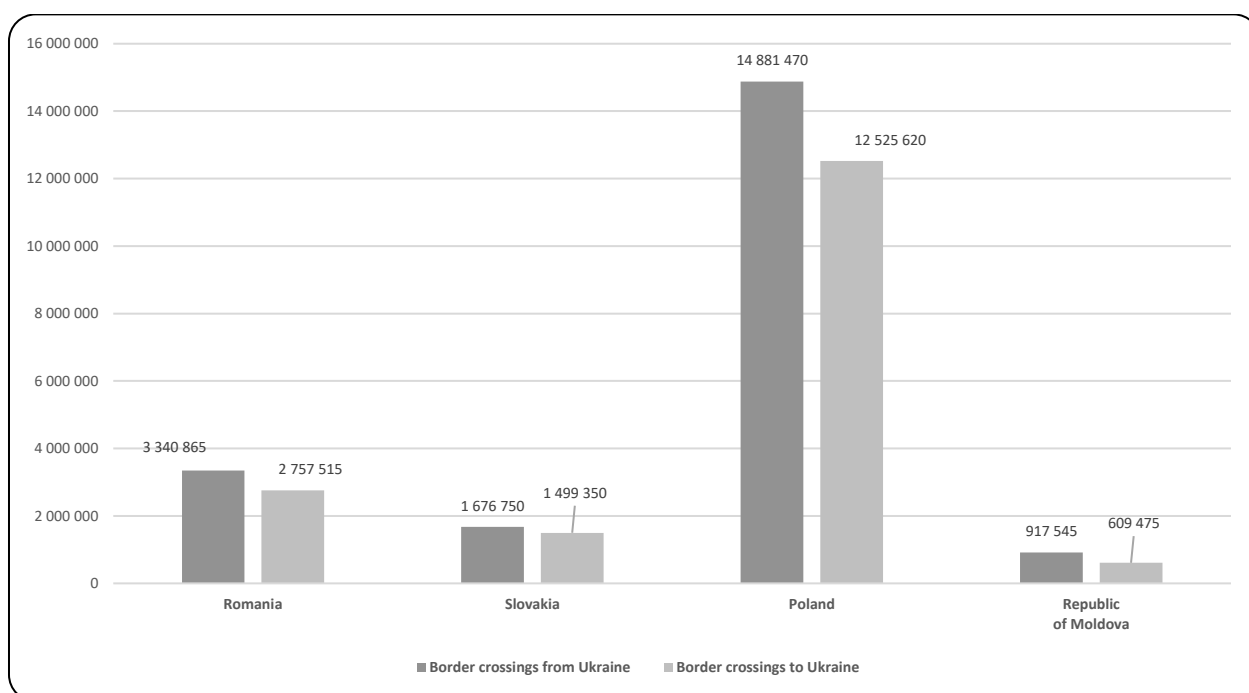
Figure 1: Number of border crossings from Ukraine to Hungary from 24.02.2022 to 31.08.2023¹⁹



It is important to note that these figures do not represent persons but border crossings, without reference to nationality. Furthermore, there is no information available on those leaving Hungary or returning to Ukraine, i.e. there is no evidence available to make any judgements based on these data about how many of those fleeing the war actually remain in Hungary. It is unfortunate that data by nationality is not available on the public website of the Hungarian National Police, so the information that can be drawn from this source of statistical data is relatively limited. The spikes observed are presumably due to the change in the intensity of the war and correlate with the periods when war-related curfews were imposed in Ukraine. In addition to those who left Ukraine forcibly, the flow of entrants to Hungary may of course also include e.g. those who returned to Hungary after some form of humanitarian assistance in Ukraine. In contrast to the Hungarian National Police, the national data providers of some EU Member States also publish data on persons entering Ukraine from their territories, which would presumably be available for Hungary.

¹⁹ Compiled by the author. Data source: Daily statistics published by the Hungarian National Police on its website (<https://www.police.hu>).

Figure 2: Number of border crossings from Ukraine and to Ukraine – based on data of some EU member states and of the Republic of Moldova²⁰



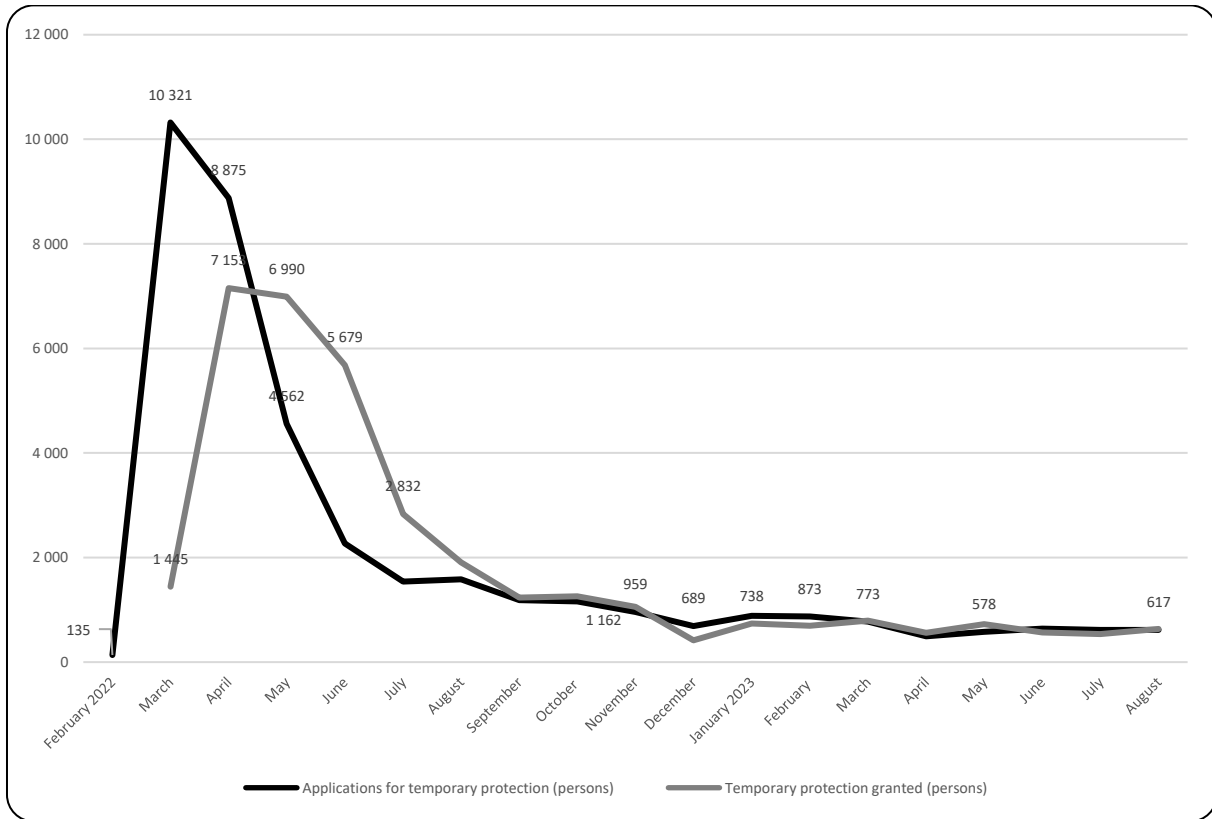
People arriving in Hungary from Ukraine have several options for staying which makes the understanding of statistics more difficult. Hungarian citizens from Ukraine may enter and reside in Hungary without restrictions (but are excluded from temporary protection). Data on persons who establish usual residence (registered address) in Hungary is collected by the Hungarian Central Statistical Office (HCSO). 2-3 thousand Ukrainian citizens immigrated to our country as naturalised citizens every year, but in the year of the outbreak of the war this number increased to 7000.

Ukrainian citizens holding a valid biometric travel document may stay in the country for up to 90 days, but no public data are - and will not be - available on them. Third-country nationals may also apply for a valid residence permit for short or long stays. Another option for non-Hungarian nationals coming from Ukraine is to apply for temporary protection, which allows for stays of up to 12 months, but can be extended and actually it was extended. Sporadic data on applications and decisions on temporary protection were published by the National Directorate-General for Aliens Policing (NDGAP) until end of September 2022 but Eurostat and UNHCR still publish data. HCSO publishes data on application for temporary protection and on decisions on them on a quarterly base.

By the end of August 2023, around 39,000 persons had applied for temporary protection, the vast majority of whom had already been granted temporary protection status. The number of applications for temporary protection was at its peak at the beginning of the conflict – especially in the first calendar year of the conflict and has been on a steady downward trend, with monthly applications reaching around 800 or less since the summer of 2022. It is assumed that some of the applicants for temporary protection are no longer in Hungary - some may have emigrated back to Ukraine or sought protection in another EU Member State - or at least the duration of their stay in Hungary cannot be clearly established.

²⁰ Compiled by the author. Data source: UNHCR Operational Data Portal – Ukraine Refugee Situation (<https://data.unhcr.org/en/situations/ukraine>).

Figure 3: Number of applications for temporary protection and persons granted temporary protection from February 2022 to August 2023²¹



Since the outbreak of the war and the entry into force of the Temporary Protection Directive, the National Directorate General for Aliens Policing (NDGAP)²² provided information on the evolution of the number of applications for recognition of temporary protection status - in fact, the total number of applications at any given time, as a snapshot. The information is provided in the form of a textual press release, without any simple data visualisation or format that can be easily downloaded and used by users. Another difficulty for the usability of the data is that the NDGAP only publishes status data, the frequency of the data releases being irregular rather than regular. Due to the irregular nature of the data, only cautious conclusions can be drawn from these data on the evolution of the number of applications per asylum. Unfortunately NDGAP has stopped the semi-regular publishing data from October 2022. At the end of July 2023, according to Eurostat data the number of persons with asylum status per 1,000 capita in the EU-27 was 8.9, while in Hungary it was 3.3, the fourth lowest in the EU. In the Czech Republic the same indicator was 33.²³

D Implementation of the Temporary Protection Directive

A significant step to prevent the emerging refugee crisis was the application of the Temporary Protection Directive (Directive 2001/55/EC)²⁴ to protect people displaced from Ukraine by the Russian-Ukrainian war. On 4 March 2022, the EU Council adopted Implementing Decision 2022/382 on the application of the Temporary Protection Directive. This is the first time since

²¹ Compiled by the author. Source: Demographic Tabulation Application of the Hungarian Central Statistical Office.

²² NDGAP, http://oif.gov.hu/index.php?option=com_k2&view=item&id=390:hivatal-bemutatas&Itemid=896&lang=hu

²³ Own elaboration based on Eurostat's database (<https://ec.europa.eu/eurostat/web/main/data/database>)

²⁴ Directive 2001/55/EC, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0055>

the adoption of the Directive that it has been applied. The Hungarian Government adopted the Council Decision based on Government Decree No 86/2022 (7.III.) on emergency rules relating to persons recognised as eligible for temporary protection but before its adoption Hungary already gave protection to persons fleeing from Ukraine based on Act LXXV of 2007 on Asylum.

The creation of the Temporary Protection Directive was essentially motivated by the wars in Yugoslavia and was designed to deal with large-scale influxes of displaced persons. It is intended to operate in a situation where Member States' asylum systems are unable to cope with the volume of new cases. The Temporary Protection Directive was the first Asylum Directive adopted by the Council on the basis of Article 63(2)(a) and (b) of the Treaty establishing the European Communities, which are now an integral part of Article 78(1) and (2)(c) and (g) Treaty on Functioning of the European Union (TFEU)²⁵. The Temporary Protection Directive is part of the existing legislation of the European Union and is often considered as the third category of protection. The temporary protection category, as its name implies, creates a temporary legal status, which is accompanied by rights and benefits for the beneficiary of the protection category.

The Directive sets minimum standards for the temporary protection of asylum seekers in the event of a mass influx of forcibly displaced persons and allows, in theory, for a balanced burden-sharing between Member States. A mass influx is defined as the arrival of a large number of forcibly displaced persons from a third country or from a contiguous area involving several states. The existence of this situation must be decided by the EU Council by qualified majority. The period of protection granted by the Council is one year, renewable twice for six months. Temporary protection does not replace the granting of refugee status under the Geneva Convention, which is based on an individual asylum procedure, but only allows authorities overwhelmed by the mass influx to have a maximum of two years to carry out the procedure. The directive grants beneficiaries of temporary protection rights similar to those of recognised refugees, i.e. access to the labour market and the possibility of family reunification.

The Directive was the result of discussions between Member States starting in the early 1990s. It was necessary because Member States needed to find a solution to the critical situation caused by the influx of large numbers of asylum seekers from the former Yugoslavia, especially Bosnia and Herzegovina, and from Kosovo in the late 1990s.

At the time of the Kosovo crisis, the Council of the EU reaffirmed its position that, while international protection should be provided primarily within the region of origin, the extension of protection within the Community is also an important issue due to the large number of asylum seekers who are forced to leave their country. In 1999, the Council adopted an action plan under Article K.3 of the Treaty on European Union to establish *"projects and measures to provide practical support in relation to the reception and voluntary repatriation of refugees, displaced persons and asylum seekers, including emergency assistance to persons who have fled as a result of recent events in Kosovo."*²⁶ Pending the adoption of the directive, member states provided temporary protection to displaced persons in the framework of the UN Humanitarian Resettlement Programme and their experience there was subsequently used to negotiate and draft the Temporary Protection Directive. The purpose of the Temporary Protection Directive is twofold: on the one hand, it lays down minimum standards for the protection of displaced persons and, on the other, it helps to ensure a fair sharing of the burden between Member States. In 2011, Italy formally requested the application of the directive in order to deal with the situation caused by the large influx of asylum seekers from Tunisia, but the Council did not

²⁵ Treaty on Functioning of the European Union, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2012:326:FULL>

²⁶ Joint Action of 26 April 1999, <https://eur-lex.europa.eu/legal-content/MT/TXT/?uri=CELEX:31999F0290>

agree on the applicability of the directive, as it considered that the conditions set out in the directive were not met.

E Applications from temporary protection from Ukraine

At the time of the arrival of forcibly displaced persons in Hungary, the most urgent task of the law enforcement agencies was to set up registration points and to take care of applicants for temporary protection, in parallel with the suspension of systematic controls. In the course of providing assistance, the police set up so-called assistance points in settlements close to the Hungarian-Ukrainian border. The most important tasks were care, accommodation and transport. Accommodation for applicants for temporary protection was provided by the National Directorate General for Disaster Management. At the same time, the police made it a priority to maintain public security in order to prevent abuse of the humanitarian right. In order to register the large number of asylum seekers, it was also necessary to implement IT improvements and centralise care, during the registration process, the applicant's personal data and photograph were recorded, checked in various databases and the temporary residence certificate was issued. The process allowed the link between the national border registration system and the police case management support system to be established. As a result of these improvements, the registration of a person was reduced from 90 minutes to about 5-8 minutes. Nevertheless, as the war progressed, police experience showed that the number of abuses of asylum status increased. Persons taken under temporary protection are entitled to a residence permit issued for humanitarian purposes for the duration of the procedure and they are issued with a residence permit containing biometric data, which does not in itself entitle the holder to travel abroad. Those with temporary protection status receive free health care, and the state also covers any document translation costs, as well as the right to participate in public education and work in Hungary. At the end of July 2023, according to Eurostat data²⁷, the number of persons with asylum status per 1,000 capita in the EU-27 was 8.9, while in Hungary it was 3.3, the fourth lowest in the EU. In the Czech Republic the same indicator was 33.

III. Summary

The year 2022 is a clear break in the migration flows trend between Ukraine and Hungary. The Ukrainian-Russian war has caused the biggest humanitarian disaster in Europe since the end of World War II, and in September 2023 there is still no prospect of an end to the war. There are already many sources of data on the scale of forced migration caused by the war, but it remains to be collated into a single source or database. The evolution of the number of Ukrainian refugees in the EU after a certain period of time (typically 12 months or more) will also have a statistical impact on the population. Taking this into account, it would also be important to develop a uniform statistical data collection and publication at least for EU Member States. This is undoubtedly a difficult task, as some of the forcibly displaced persons who have fled Ukraine because of the war are not registered or registered with the national authorities, as Ukrainian citizens holding a biometric passport can stay in the EU for up to 90 days without a visa and without having to report their presence. Border traffic statistics also show a return flow, with some of the asylum seekers having already returned to Ukraine. On the one hand, the low number of applications for temporary protection (only 1% of daily border crossings) suggests that few Ukrainians wish to stay in Hungary for a longer period, on the other hand, however, the relevant data needed to draw firm conclusions on this issue are not yet available, or are incomplete in terms of quality, timeliness and depth.

²⁷ Own elaboration based on Eurostat's database: <https://ec.europa.eu/eurostat/web/main/data/database>

There are several sources of data available on Ukrainian refugees, including national data sources such as NDGAP and the HCSO, which publishes data taken from NDGAP. NDGAP also transmits statistical data to Eurostat, which publishes them on its website. NDGAP's data publication practices are highly inconsistent. The Hungarian police also publishes border traffic statistics, but it is not possible to draw far-reaching conclusions from these data. Overall, it can be concluded that although Hungary is a de facto destination country for people fleeing Ukraine, it is not to a significant extent compared to other EU Member States.

I consider it necessary to establish the possibility of exchanging statistical data on refugees from Ukraine between national authorities and EU Member States, thus facilitating informed policy decisions in the field of asylum.

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How to Motivate Law Enforcement Students & How their Individual Flow State Is Reflected in ESP Classes?

Gabriella Ürmösné Simon¹, Nóra Barnucz², Dalma Lilla Dominek³

In 2021, the Department of Foreign Languages for Specific Purposes (hereinafter: Language Department) was awarded the 1st place for the prize of “Innovative Department” initiated by the Creative Learning Programme, and the Vice Rector. One of the innovative features of the Language Department highlights that ICT-supported seminars are highly motivating for students.⁴ The objective is to propose what elements are indispensable to make the students’ individual flow experience visible in higher education, and thus, to implement the flow-based pedagogical model in education.⁵ Students are expected to be able to constantly be attentive, independent and creative.⁶ Our research confirms that students enjoy the digital environment because they are challenged to think, problem-solve, and collaborate, thereby they improve their competences and creativity.⁷ In order to enhance the students’ individual flow state and knowledge, a pilot research was carried out to measure the application of Augmented Reality⁸ and the HY-DE model.⁹ The research was conducted in the framework of English for law enforcement in the academic year of 2021/2022. At the end of the test seminars, a Flow State Questionnaire was filled in by the students and their vocabulary knowledge was measured with a self-made test. It is assumed that the use of digital technology in the classroom has a positive effect on the development of the students’ motivation and language skills. According to the initial results, there is a significant difference between the students’ individual flow state in the study and the control group. It means that students in the study groups, where the teaching material was transferred by the use of ICT tools, perceived learning as an experience and a challenge.

Keywords: English for law enforcement, Flow, creativity, Augmented Reality, HY-DE model

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⁴ Ürmösné, Simon, Gabriella, Barnucz, Nóra and Kudar, Mariann, ‘Út az Innovatív Tanszék első helyezett díja felé’. *Belügyi Szemle* 70, no 10 (2022a), 2113–2133.

⁵ Dominek, Dalma, Lilla, ‘On a Flow-based pedagogical model The emergence of experience and creativity in education’. *Eruditio-Educatio* 17, no 3 (2022a), 72–82.

⁶ Dominek, Dalma, Lilla, ‘A FLOW mint a pozitív pszichológia jelenléte az oktatásban’. *Eruditio – Educatio* 16, no 4 (2021b), 72–82.; Dominek, Dalma, Lilla, *Élményalapú környezeti nevelés a természettudományi múzeumokban. Belvedere Meridionale*, Szegedi Egyetemi Kiadó, 2021a.

⁷ Dunleavy, Matt and Dede, Chris. ‘Augmented Reality Teaching and Learning’. in *Handbook of Research on Educational Communications and Technology*, ed. by J. Michael Spector, M. David Merrill, Jan Elen and M. J. Bishop, Springer, 2014, 735–745. Barnucz, Nóra, ‘Digitális pedagógia alkalmazásának lehetőségei a rendészeti szaknyelvi órán’. *Magyar Rendészet* 22, no 2 (2022), 183–196.

⁸ Czékmán, Balázs, ‘Mobiltechnológia a tanórán: oktatási tartalmak, oktatást segítő digitális megoldások’. in *Mobil-Világ-Iskola: Válogatott tanulmányok az I. Mobil eszközök az oktatásban konferenciáról*, ed. by Péter Fehér and Dóra Orsolya Aknai, Debreceni Egyetemi Kiadó, 2017.

⁹ Dani, Erzsébet, ‘A kétfázisú HY-DE-modell: A hiper- és mélyfigyelem fázisváltásai a katedrától a hallgatói önfejlesztéséig’. *Informatika a felsőoktatásban konferencia* (2014).

I. Introduction

In 2021, the Language Department became the 1st prize winner of the “Innovative Department” prize. The expectations of the Creative Learning Programme (hereinafter: CLP) was initiated by the Vice Rector of the Ludovika University of Public Service (hereinafter: LUPS) for the nomination of the most innovative department.¹⁰ The expectations were as follows: fostering and attracting talents, conveying knowledge transfer, collaboration with other departments, the promotion of learning, innovation and creativity, inspiration, and future orientation. The content of the call for the competition of the “Innovative Department” (hereinafter: competition or project) covered a wide range of the students’ expectations; from the promotion of individual learning, motivation of students and professors to developing skills as the presence of collaboration and the exploitation of collective knowledge, which were also highlighted in the project, and these elements are also stressed in Szabolcs Mátyás’s works.¹¹ Taking into account the key competences and the concepts of the CLP, openness to innovations, exploitation of internal and external partnerships and networks were also emphasized amongst the expectations we had to meet. The following issues were also enhanced by the committee of the CLP: the measurement of successfulness and the motivation in education; the improvement towards the sub-optimal areas, mutual values, clear objectives, well-structured methods for creativity of the department, best methods, and the implementation of the good practices. In addition, in order to have a chance to be awarded, we had to give a real insight into how the colleagues inspire each other and the students as well, and how they increase the prestige of the department. Furthermore, the competition involved questions related to how the departments represent collective pedagogical values, educational policy and future perspectives. Finally, the applicants had to prove that the colleagues of the departments could make decisions flexibly, learn fast, how the organisational culture promotes new ideas and how they can make the performance of education visible for the whole Faculty and for the students as well. Needless to say, that as teachers we have to face the Generation Y and Z, who want the maximum benefit with the least effort and whose attention is difficult to capture. Therefore, the question is relevant: why do we (the teachers and the tutors) need change? The answer is easy, and it is visible in the pictures as well i.e. how students look like nowadays both in the classroom and in the break:

Picture 1: Students’ behavior in the classroom and during break¹²



¹⁰ Ürmösné, Simon, Gabriella, Barnucz, Nóra and Kudar, Mariann 2022b.

¹¹ Mátyás, Szabolcs, A Kárpát-medencei talentumföldrajza. Mátyás Szabolcs és Társa, Debrecen, (2020).; Mátyás Szabolcs, ‘Talentumföldrajzi elemzések a Kárpát-medencében’. *Területi Statisztika* 61, no 4 (2021), 466–502.

¹² Source: URL1 and URL2

Overall, it is indispensable to apply new methodologies to capture the students' attention on both seminars and on lectures as well. It is substantial to apply the opportunities offered by the digital world, for example, learning and teaching e-investigation skills as well.¹³

II. Applied methodologies & building networks

The colleagues of the Language Department use a wide range of ICT platforms to create competitive spirit, and enhance motivation such as Mentimeter, Quizlet, Quizzes, Kahoot, Redmenta, Padlet, Wordwall, BigBlue Button, Moodle, Classroomscreen, Quiz Show, Mindomo (mindmap), Edpuzzle, Word Art and so on.¹⁴ There are three more methods we started to test in the framework of classroom research in order to enhance the students' motivation: (1) the application of Augmented Reality (hereinafter: AR), (2) the HY-DE model, which influences the hyper and deep attention of the students by multitasking effects such as images, sounds, videos, power point presentations and so on. We also apply (3) the method of Mission-Oriented Preparation (hereinafter: MOP method) in strong cooperation with professionals in a situational linguistic environment, devised by Éva Kovács, targeting the students of private security. This innovative teaching method combines methodological and pedagogical approaches and applies a practical way. Its objective and mission are to prepare students to be fit for their future task in the target language.

In order to comply with the above-mentioned criteria devised by the CLP, various events are organised by the Language Department: we have two compulsory workshops annually in order to train the teaching methods. One of them is the *Innovative methods in language education for special purposes*, where new trends in language teaching, ICT platforms and good practices are introduced such as the application of AR in the classroom, new methods in language teaching, gamification or escape room. The other one is the *Law Enforcement Workshop*, where we have opportunities to keep up with the latest information concerning law enforcement topics like cyber criminality, dark web, terrorism, new psychoactive materials, biometrics, organised crime, security technology and so on. We have participated in such workshops, where we were trained in the topics of forensic linguistics, crime scene investigation, terrorism, cyber criminality, new psychoactive materials, and profiling, since we teach English, German and Russian for law enforcement at the Faculty of Law Enforcement (hereinafter: FLE).

We regularly participate in different *projects or competitions* and four of them have already been awarded: the 1st prize was given by the Internal Affairs Scientific Committee in 2020, then we became also the 1st prize winner of the "Innovative Department Prize" in 2021. Next year, the 3rd prize was received from the Disaster Management Scientific Committee, and last but not least, Nóra Barnucz and her research colleagues took part in the Profformance Higher Education Teacher Award Call in 2022, where the 2nd prize was awarded, based on the project work of the AR-supported good practice. Furthermore, other calls for applications such as the European Educational Research Association Award was also won by us. In addition to the projects and competitions, we take part in publication of Q studies and the Hanns Seidel foundation as well. We participate in *conferences* and congresses in the scientific fields of psycholinguistics, languages for special purposes, pedagogy, and private security as presenters, as we take part in

¹³ Nyitrai, Endre: A magyar nemzeti adatvagyon jelentősége a bűnüldöző szervek munkája során. *Információs Társadalom* 2022, no 1 (2022), 67–80.; Nyitrai, Endre, 'A koronavírus elleni küzdelem és a nemzeti adatvagyon újrahasonosítása a rendőrség vonatkozásában' in *A járvány hosszútávú hatása a magyar közigazgatásra*, ed. by Ádám Rixer, Budapest: Károli Gáspár Református Egyetem Állam- és Jogtudományi Kar Lőrincz Lajos Közjogi Kutatóműhely, 2021, 339–345.

¹⁴ Ürmösné, Simon, Gabriella, Borszéki, Judit, Barnucz, Nóra and Uricska, Erna, 'A rendészeti szaknyelv szerepe a felsőoktatásban és az új nyelvi stratégia bevezetése'. *Porta Linguae* 2021, no 1 (2021b), 185–195.

conferences on law enforcement issues as an audience. Regarding the *constant development of training materials*: in the last 4 years, 2 bilingual English and Hungarian dictionaries for law enforcement, border policing, and immigration policing, 2 German and 2 English course books for law enforcement were published by the Language Department. In process, we have a new course book in the field of law enforcement, customs administration, disaster management and private security with glossary as well.

Research activities are constant and they are also carried out by the Language Department in the fields of psycholinguistics,¹⁵ Greek-Hungarian bilinguals,¹⁶ sociolinguistics,¹⁷ law enforcement topics such as special penal institutions,¹⁸ serial killers,¹⁹ law enforcement lexemes, forensic linguistics²⁰ and the effectiveness of the online education at the FLE.²¹ The technical language of customs administration, border policing,²² immigration, disaster management, private security,²³ biometrics,²⁴ psychoactive substances,²⁵ innovative language teaching methods, e-learning,²⁶ the integration of ICT platforms, the MOP,²⁷ the intercultural competence,²⁸ the comparative literature,²⁹ and the Russian literature, are also research topics at the Language Department. As we have observed the expectations of students, the use of language in the period of COVID-19 pandemic³⁰, the effect of online education and the

¹⁵ Ürmösné, Simon, Gabriella, 'Hungarian-Greek communicative strategies in respect of gender', in *Mentális folyamatok a nyelvi feldolgozásban*, ed. by Judit Navracscics and Dániel Szabó, Budapest, Magyarország: Tinta Könyvkiadó, 2012, 280–290.

¹⁶ Ürmösné, Simon, Gabriella, 'A Case Study Based on a Spontaneous Discourse of Greek–Hungarian Bilinguals in Respect of Interjections, Swear Words and Syntactical Mistakes, as Regards Gender'. *Magyar Rendészet* 17, no 4 (2017), 193–210.

¹⁷ Ürmösné, Simon, Gabriella, 'Gender, szubkultúrák és genderpragmatika', in *Transzdiszciplináris üdvözetek: Lengyel Zsolt számára*, ed. by Judit Navracscics, Budapest, Magyarország, Veszprém, Magyarország: Gondolat Kiadó, 2014, 210–218.

¹⁸ Ürmösné, Simon, Gabriella, 'Amazing Penal Institutions and Dwelling Circumstances of Inmates'. *Internal Security* 11, no 2 (2019), 179–190.

¹⁹ Ürmösné, Simon, Gabriella, 'The portrayal and the attributes of serial killers and some of the most notorious ones'. *Internal Security* 12, no 2 (2020), 261–273.

²⁰ Ürmösné, Simon, Gabriella and Nyitrai, Endre, The phenomena of epidemic crime, deepfakes, fake news, and the role of forensic linguistics. *Információs Társadalom* 2021, no 4 (2021a), 86–101.

²¹ Ürmösné, Simon, Gabriella, Barnucz, Nóra and Kudar, Mariann, 'Út az Innovatív Tanszék első helyezett díja felé'. *Belügyi Szemle* 70, no 10 (2022b), 2113–2133.

²² Borszéki, Judit, 'The role of domain experts in the development of the course English for Border and Coast Guards'. *Rendőrségi Tanulmányok* 2021a, no 1–2 (2021), 6–23.

²³ Christján, László and Kovács, Éva, 'Private security and municipal policing in academic education - an international overview'. *Magyar Rendészet* 18, no 4 (2018), 49–60.

²⁴ Kovács, Éva and Kovács, Tibor, 'Identification and Authentication Potentials Based on Limited Biometric Data', in Security-Related Advanced Technologies in *Critical Infrastructure Protection: Theoretical and Practical Approach*, ed. by Anna Tünde Kovács, Zoltán Nyikes and Igor Fürstner, Heidelberg, Németország: Springer Netherlands, 2022, 391–404.

²⁵ Bacsó, Bernadett, 'A kábítószerrel összefüggő bűnözés elleni küzdelem és a főbb térbeli jellemzői a kábítószer-bűnözésnek a német nyelvű országokban'. *Bűnözéstudományi Közlemények* 4, no 3–4 (2023), 9–18.

²⁶ Borszéki, Judit, 'The Development of E-Learning Tools Used for Teaching English for Law Enforcement'. *Internal Security* 13, no 1 (2021b), 181–200.

²⁷ Szabó, Anikó and Kovács, Éva, 'A személy- és vagyonőrök objektumspecifikus fejlesztési terve (IDPS) MOP-kiterjesztéssel'. *Magyar Rendészet* 21, no 3 (2021), 139–154.

²⁸ Nagy, György, 'A rendészeti hallgató gondolkodásmódja és az interkulturális kompetencia fejlesztése'. *Magyar Rendészet* 22, no 4 (2022), 153–169.

²⁹ Nagy, Éva, 'A turgenyevi témák és I. Sz. Turgenyev "alakjának" problémái F. M. Dosztojevszkij "Ördögök" című regényében'. in *Műértelmezés – fordításkritika – transzmedialitás*, ed. by Zoltán Dominika, Péter Bali-Farkas and Sarolta Krisztina Tóthpál, Budapest, Magyarország: ELTE Orosz Irodalom és Irodalomkutatás - Összehasonlító Tanulmányok Doktori Program, 2022, 119–131.

³⁰ Uricska, Erna, *COVIDictionary New words and phrases related to the global pandemic*. Budapest: Rejtjel Kiadó, 2021. Uricska, Erna, *COVIDictionary 2.0 New words and phrases related to the global pandemic*. Kecskemét: Smaragd Kiadó, 2023.

usefulness of education maintained by the principle of the Computer-Assisted Language Learning (CALL) and the Mobile Assisted Language Learning (MALL) were also measured at the FLE. In addition to the preparation for the exam of Language for Service (LforS), general intermediate language exam, consultations, competitions, scholarships, the *building of foreign networks* were also highlighted in the project. We *upgrade the students* who do not possess the B2 language exam, and we *mentor them* for the LforS ESP exam. Earlier we had an opportunity to prepare the students for the Chinese scholarship to the Zhongnan University and cyber competition as well.

Due to the international work team within the framework of FRONTEX, we have Italian, German, Romanian and Slovenian connections, and due to the CEPOL training programme, we have Estonian and Cretan collaborations as well. We foster Irish relationship too, regarding the University of Limerick. In the framework of the series of the Summer School of Psycholinguistics, we cherish international connections as well. Regarding our *national memberships* and collaborations, we can mention the Hungarian Association of teachers and researchers of languages for specific purposes, the Hungarian Association of Applied Linguists and Language Teachers, the Summer School of Psycholinguistics, Fédération Internationale des Professeurs de Langues Vivantes and the ICT MasterMinds research teams. We also keep in touch with the experts of the other departments such as the National Tax and Customs Administration, the Border Policing as well, which authorities let us participate in field works, in authentic environment. We also foster relationship with a forensic linguist and a crime scene investigator as well. In the framework of the project, *the international connections via Erasmus+ mobility* and the cooperation with different universities were also highlighted such as the University of Nicosia in Cyprus, the Istanbul Kültür University, the Estonian Academy of Security Sciences in Tallin, the Police Academy in Szczytno, in Zilina, and in Appeldorn. We used to teach in the Academy of Police Force (Bratislava), and in Rothenburg (Hochschule der deutschen Polizei) as well.

III. The Augmented Reality

Augmented Reality is an increasingly widespread technology that allows the computer to generate virtual elements into the physical world such as a 3D model, an animation, or a video.³¹ According to the most widely accepted definition of AR, it combines the real and virtual world interactively, all registered in 3D.³² The augmented system is taken place between the real and virtual world. There are several types of AR: marker less-, location, marker or superimposition-based AR. It can be adaptable for military purposes, entertainment industry, marketing or medical and educational purposes as well, and either a smart phone or a tablet is required for the visual image.³³ First, it provides a motivational basis in the classroom, and supports both project and team work as well. Second, it is useful for a wide range of classroom activities such as cooperative tasks, simulation, discussion, debate, presentation, explanation, and demonstration as well.³⁴ The application of technologies like Artificial Intelligence (AI),

³¹ Matuszka, Tamás, 'Kiterjesztett valóság alkalmazások fejlesztése, elemzése és a fejlesztőeszközök összehasonlítása.' 2012. TDK dolgozat, ELTE IK. <http://people.inf.elte.hu/tomintt/tdk.pdf> [2023.11.07.]

³² Azuma, Ronald, T., 'A Survey of Augmented Reality.' *Presence: Teleoperators and Virtual Environments* 6, no 4 (1997), 355-385.

³³ Aknai, Dóra, Orsolya, Balázs, Czékmán, Péter, Fehér, 'Kiterjesztett valóság (AR) alkalmazások használata és készítése az iskolában' in *Iskola a társadalmi térben és időben VII.*, ed. by Patrícia Maisch, Nikolett Márhoffer, Zsófia Molnár-Kovács, Nikoletta Szekeres, Karolina Szücs-Rusznak, Pécs: PTE BTK "Oktatás és Társadalom" Neveléstudományi Doktori Iskola, 2021, 150-156.; Barnucz, Nóra, 'A kiterjesztett valóság alkalmazása a nyelvoktatásban különös tekintettel a rendészeti szaknyelvre'. *Educatio* 29, no 4 (2020), 644-652.

³⁴ Ibañez, María, Blanca, Uriarte, Aldo, Portillo, Zatarain, Ramón, Cabada and Barrón, María, Lucía, 'Impact of augmented reality technology on academic achievement and motivation of students from public and private

Virtual Reality (VR), Augmented Virtuality (AV) and Augmented Reality (AR) have appeared and expected on the labour market. We highly appreciate the cooperation with the company of the Stiefel Interactive Ltd.³⁵ who developed the eduARdo software in Hungary. On the one hand, the students of the FLE were able to test how to apply it for content consumption and content creation as well, and on the other hand, we could measure the added value of the application of software for the learning and teaching process and for the development of the students' vocabulary knowledge at the LUPS.

IV. Presentation of the research

The research was carried out in the academic year of (2021/2022), which was carried out in the framework of a classroom research where the AR software and the HY-DE model were applied to measure the added value of them to the students' individual flow state during the seminar and the development of their vocabulary acquisition in ESP classes for Law Enforcement.³⁶ The classroom research was conducted with the involvement of study and control groups (n=35). In the control group, the teaching material was supported by the use of traditional methods and without technical devices (n=12); in the study group 1, the AR software was applied (n=11), and in the study group 2, besides the AR software, we applied the HY-DE model as a methodology to improve the students' vocabulary knowledge and maintain their individual flow state on the seminar (n=12). The question may arise whether traditional or Internet-based solutions/tools provided higher individual flow state for them and could help them learn more professional language terms in the context of ESP classes. It is assumed that the use of digital devices provides more contribution; the students acquire new vocabulary and they have a positive effect on their involvement (their individual flow state) into the process of teaching and learning. The measurement tools were as follows: pre and post tests for the measurement of the development of their vocabulary knowledge and the Flow State Questionnaire (hereinafter: FSQ) -validated by Magyaródi and her colleagues³⁷ but adapted by Dalma Lilla Dominek at the LUPS³⁸ - to measure the involvement (immersion) of the students for the effect of the application of the ICT tools. In this study, we present the results of the students' individual flow state.³⁹

V. Results

According to the results, there is no difference in the students' individual flow state of the study groups: the students were in a deep, *over 80 percent flow state* due to the application of digital technology, while among the students of the control group (teaching without the application of the AR and HY-DE model) there was no involvement during the transmission of the course material (values below 80 percent). According to our assumptions, ICT-based teaching material

Mexican schools. A case study in a middle-school geometry course'. *Computers & Education* 145, (2020), 103734.

³⁵ The collaboration among the company and the researchers of the project was realized with the help of Balázs Czékmán, a researcher.

³⁶ Barnucz, Nóra and Uricska, Erna, 'Kiterjesztett valóság és közösségi oldalak alkalmazása a nyelvtanításban különös tekintettel a rendészeti szaknyelvre'. *Rendvédelem* 10, no 2 (2021), 4–48.

³⁷ Magyaródi, Tímea, Nagy, Henriett, Soltész, Péter, Mózes, Tamás and Oláh, Attila, 'Egy újonnan kidogozott flow állapot kérdőív kimunkálása és pszichometriai jellemzőinek bemutatása'. *Pszichológia* 33, no 1 (2013), 15–36.

³⁸ Dominek, Dalma, Lilla, 'Creativity in higher education through the flow channel'. *Belvedere Meridionale* 33, no 4 (2021c), 5-12.

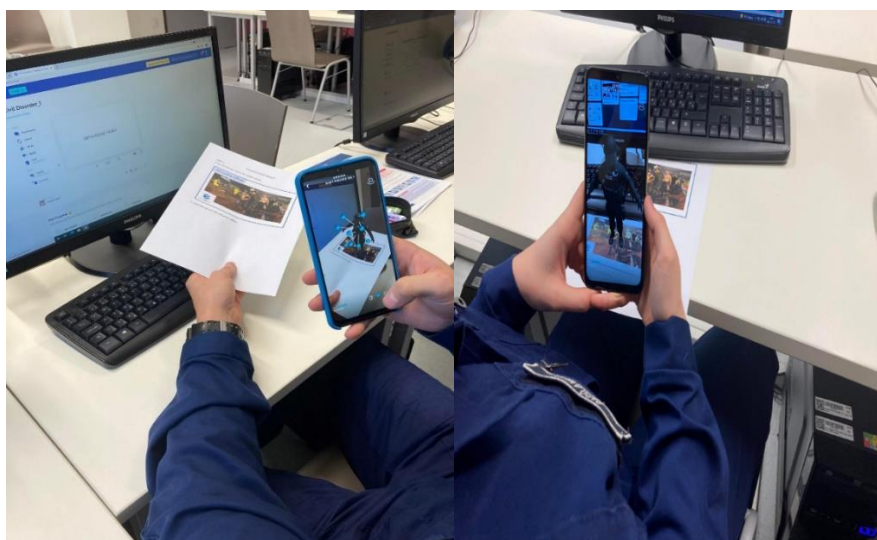
³⁹ Dominek, Dalma, Lilla, Czékmán, Balázs, Bujdosóné, Dani, Erzsébet, Uricska, Erna and Barnucz, Nóra, 'A digitális flow világa. Egy kísérlet első eredményei'. *Tudásmenedzsment* (2024). (forthcoming publication)

has a positive effect on the development of the students' individual flow state, which was proven by the initial results of the research, so it can be concluded that the students experienced the application of the tools/methods in the classroom as a challenge and an experience. In the near future, descriptive statistics, correlation studies and difference analyses will be performed related to the students' vocabulary knowledge and their learning style.

VI. Summary

The classroom research fits perfectly in the Institutional Development Plan of the LUPS (2020-2025), because the goal of experiential pedagogy and the modernization of higher education are both maintained by the research, which can be realized in professional language classes, on the one hand, by student-centred education, and on the other hand, by the development of digital knowledge as well. In addition, the application of the ICT tools in education provides a challenge for the students,⁴⁰ and due to the impact on them, a constructivist-learning environment can be created,⁴¹ where they can merge into the flow experience.⁴² The experimental tools can be used extremely well so that students can monitor the solutions of their completed task and try to identify their difficulties in retrospect – as this allows the instructor to develop problem-solving strategies and critical thinking as well (Metacognitive model).⁴³

Picture 2: Using ICT tools in education ⁴⁴



⁴⁰ Ürmösné Simon Gabriella, Borszéki Judit, Barnucz Nóra and Uricska Erna, 2021b.

⁴¹ Nahalka, István, *Hogyan alakul ki a tudás a gyermekben? Konstruktivizmus és pedagógia*. Nemzeti Tankönyvkiadó, 2002. Dominek, Dalma Lilla and Ceglédi, Szabolcs, 'Alkoss – A találmányosság pszichológiája! Kreativitás mint képességvizsgálat a Tóth-féle kreativitás becslő skála segítségével a Nemzeti Közszolgálati Egyetem hallgatóinak körében'. *Magyar Pedagógia* 121, no 4 (2021d), 395–407.

⁴² Csíkszentmihályi, Mihály, *Kreativitás. A flow és a felfedezés, avagy a találmányosság pszichológiája*. Akadémiai Kiadó, 2008.; Dominek, Dalma Lilla, *Flow, avagy játékos kommunikáció a múzeumokban*. Belvedere Meridionale, Szegedi Egyetemi Kiadó, 2020.; Dominek, Dalma Lilla, 2021c.

⁴³ Barnucz, Nóra and Uricska, Erna, 'Innovatív nyelvtanulási módszerek és módszertan a rendészeti szaknyelvi képzés vizsgálatában. Előtanulmány egy vizsgálathoz'. *Új Pedagógiai Szemle* 70, no 9-10 (2020), 53–63.

⁴⁴ Source: Barnucz et. al. (2022): The content was presented on the Spotlight on Higher Education Teaching Performance – Proformance Final Conference, 16 06 2022 Budapest; the visuals were taken in an ESP class as a part of a classroom research of the application of AR.

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Banking Monitoring and Compliance in the Prevention of Money Laundering

Fernando Manuel Barroso Vilelas¹

Money laundering has caused concern across most modern societies and a threat to the rule of law. The phenomenon develops fundamentally through the banking sector, exploiting weaknesses of a global economy strongly driven by successive technological innovations and giving rise to new forms of crime that threaten the solidity, integrity and confidence in the financial system itself, indispensable to the social and economic development. The fight against the phenomenon stands out, especially at a preventive level, with the adoption of normative instruments in the last decades that call the credit institutions to join the state administration in the accomplishment of justice, imposing demanding duties in the name of preventing money laundering.

Keywords: Money laundering; prevention; banking sector; internal control; compliance programs

I. Introduction**

Concern about the adoption of appropriate mechanisms to protect the financial system emerged in the 80s with the growing increase in organised crime and the use of banks to ‘conceal’ proceeds from illicit activities. The international community has made the fight against money laundering one of the main priorities, encouraging the approximation and concertation of efforts between States and bodies through the implementation and strengthening of monitoring and compliance² procedures and mechanisms for operators in the financial system³, which require continuous updating.

The aim of this work is to analyse developments in anti-money laundering regimes and to reflect on some of the measures in the banking sector. Thus, with a view to better framing the subject under consideration, we will start the study with a brief overview of the legislation that regulates this matter, both at international and national level, as well as of the rules within the banking sector, that have translated into the materialisation and effective application of these provisions. As a second step, we will focus on defining the system of internal control of credit institutions and, in particular, the importance of compliance mechanisms in preventing and possibly waiving credit institutions of penal liability in money laundering offences.

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** A., AA. — author, authors; AA.VV. — various authors; BCBS – Basel Committee on Banking Supervision; cf – check, compare; cit., cits. — quote, quoted, etc., quotation(s); PC – Penal Code; ed., eds. — publishing, editions; publisher; USA – United States of America; E. g. – exempli gratia (for example); FATF/GAFI – Financial Action Task Force – Groupe d’Action Financière; i.e. – id est (this is to say); n^o, n^{os} – paragraph, paragraphs; UN – United Nations; org. — organizer, organization; p. p. — page, pages; RCBE – Central Register of Beneficial Owners; RGICSF – General Regime of Credit Institutions and Financial Companies; RPCC – Portuguese Criminal Science Magazine; EU – European Union; FIU – Financial Intelligence Unit; v. g. – *verbi gratia* (for example).

² Cf. Miguel da Câmara Machado referring to the existence of four generations of normative instruments which nevertheless tend to “self-destroy”. In “4G in the Prevention of Money Laundering: Problems, Paradoxes and Major Duties”, *Banking Law Studies* I, Almedina, 2018, pp. 78-80.

³ The range of entities with responsibilities in the prevention of money laundering is much wider, cf. Articles 3 to 7 of Law No 83/2017 of 18 August.

We conclude the study with brief considerations on the conclusions reached.

II. Money laundering

A *Criminalisation and legislative developments at international level*

Anti-money laundering schemes have mainly developed since the 1990s⁴ in the context of the fight against international drugs trafficking. In 1961, the United Nations⁵ had already acknowledged drug addiction as a scourge for the individual and an economic and social danger to humanity, which should be urgently fought. Concerns about public health and social problems arising from the abuse of psychotropic substances were renewed a decade later in the Vienna Convention⁶.

Awareness concerning the adoption of appropriate protection mechanisms in the financial system in order to prevent their use for transferring illicit funds, started during that period. This was reinforced with the recommendation⁷ of the Committee of Ministers of the Council of Europe, dated 27/06/1980, supported by the report of the Committee of Experts on Violence⁸ concerning the rise of organised crime and the use of banks for money laundering, which proposed the adoption of stricter procedures in the banking sector, including, particularly, the identification of customers when carrying out certain financial transactions.

In this context, it is important to highlight the initiatives of the United States of America, which, through the Money Laundering Control Act of 1986⁹, provided for the establishment of measures to ensure the monitoring and compliance of procedures in the financial sector, and subsequently with the Comprehensive Thrift Act and Bank Fraud Prosecution and Taxpayer Recovery Act of 1990¹⁰, which laid down rules to prevent abusive financial conduct, including measures that prevent access and exercise of duties in financial institutions to individuals convicted of certain economic crimes.

It should also be noted that the Basel Committee's¹¹ 1988 general statement of ethical principles called on banks' administrations to implement effective due diligence procedures, to refuse transactions that did not appear legitimate and to establish cooperative links with the authorities, outlining the guidelines on which standards of conduct in banking would be structured.

The growing trend in illicit trafficking in narcotic drugs and psychotropic substances and the continuing threat posed by criminal organisations to the economic development and security

⁴ Cf. Miguel da Câmara Machado on the generations of normative instruments that have been driving the development of the anti-money laundering regime in recent decades, cit., p. 81.

⁵ United Nations Single Convention on Narcotic Drugs, New York, 30 March 1961.

⁶ United Nations Convention on Psychotropic Substances, Vienna, 21 February 1971

⁷ Recommendation n.º R (80) 10 of the Committee of Ministers to Member States on Measures Against the Transfer and the Safekeeping of Funds of Criminal Origin, on 27 June 1980 [electronic version], accessed on 03 April 2022, at: <https://rm.coe.int/16804f6231>.

⁸ General Observations, Recommendation on measures against the transfer and the safekeeping of funds of criminal origin – Explanatory memorandum [electronic version], accessed on 03 April 2022, at: <https://wcd.coe.int/> and <https://rm.coe.int/native/09000016804b7be9>.

⁹ The legislation is a reference in the criminalization of money laundering. Cf. United States Government Publishing Office (GPO), “The Anti-Drug Abuse Act of 1986, Public Law 99-570—OCT. 27, 1986, Subtitle H – Money Laundering Control Act of 1986”, [electronic version], accessed on 03 April 2022, at: <https://www.govinfo.gov/content/pkg/STATUTE-100/pdf/STATUTE-100-Pg3207.pdf>.

¹⁰ United States Government Publishing Office (GPO), “Crime Control Act of 1990, Public Law 101- 647—NOV. 29, 1990, Financial Institutions Anti-Fraud Enforcement Act of 1990 e Comprehensive Thrift Act and Bank Fraud Prosecution and Taxpayer Recovery Act of 1990). Accessed on 03 April 2022, at: <https://www.govinfo.gov/content/pkg/STATUTE-104/pdf/STATUTE-104-Pg4789.pdf>.

¹¹ Prevention of criminal use of the banking system for money laundering, The Basel Committee on Banking Supervision or BCBS [electronic version], accessed on 03 April 2022, at: <https://www.bis.org/publ/bcbssc137.pdf>.

and sovereignty of States¹², triggered the first internationally harmonised response against money laundering in the same year, with the adoption of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (Vienna Convention)¹³ of 20 December.

This instrument has become a reference for subsequent legislative developments by providing the guidelines, which have made it possible to classify money laundering as unlawful conduct and to consider the derogation from banking secrecy¹⁴ as a special mechanism of choice in the prevention and investigation of this criminal phenomenon.

By the late 1980s, drug trafficking and money laundering reached alarming proportions and became a global social problem. As a response, an intergovernmental body (Financial Action Task Force/FATF) was established in 1989 at the Group of 7 Summit (G-7)¹⁵ to assess and promote cooperation and mutual assistance in the fight against drug trafficking, as well as to study and propose appropriate measures to prevent the use of the banking system and, in general, financial institutions for the purpose of money-laundering, and also to assess the possible adaptation of legal and regulatory systems to improve multilateral legal assistance¹⁶. FATF presented its first report the following year, proposing the implementation of a set of recommendations (the FATF's 40 Recommendations)¹⁷ to strengthen the fight against money laundering achieved through drugs trafficking.

These recommendations were addressed primarily to financial institutions in the banking sector and included the adoption of anti-money laundering programmes, aimed mainly at the development of specific policies and the implementation of internal procedures and control involving the appointment of compliance officers, the selection of officials according to high standards, the establishment of training programmes and the establishment of an audit function (see Recommendation 20).

Later that year, the Council of Europe adopted the Convention on the Laundering, Search, Seizure and Confiscation of the Proceeds from Crime¹⁸, extending the measures proposed in the Vienna Convention to the tracing and confiscation of instruments, proceeds and property derived from the commission of crimes other than drug trafficking.

¹² In this regard, Nuno Brandão stresses the importance of the adoption of conventions as a response to international concerns in relation to money laundering and organized crime, in: *Money laundering: The Community's Prevention System*, Coimbra Editora, 2002, p. 61.

¹³ Approved for ratification by the Resolution of the Assembly of the Republic No 29/91 of 06/09 and ratified by Presidential Decree No 45/91 of 06/09. It was published in *Diário da República I-A* No 205 of 06/09/1991.

¹⁴ See Article 79, entitled 'Exceptions from the duty of secrecy', of the General Rules on Credit Institutions of Financial Companies, approved by Decree-Law No 298/92 of 31 December 2006.

¹⁵ "Summit of the Arch", University of Toronto Library and the G7 Research Group at the University of Toronto. Accessed on 03 April 2022, at: www.g8.utoronto.ca/summit/1989paris/index.html.

¹⁶ Financial Action Task Force on Money Laundering – Annual Report 1990. Accessed on 03 April 2022, at: <http://www.fatf-gafi.org/media/fatf/documents/reports/1990%20ENG.pdf>. In the meantime, other intergovernmental bodies have been set up to develop and implement a global and comprehensive strategy to combat money laundering and terrorist financing, as set out in the FATF Recommendations, among which: the Financial Action Task Force of Latin America (GAFILAT), Asia/Pacific Group on Money Laundering (APG) Caribbean Financial Action Task Force (CFATF), Council of Europe Committee of Experts on the Evaluation of Anti-Money Laundering Measures and the Financing of Terrorism (MONEYVAL) Eurasian Group (EAG) Eastern and Southern Africa Anti-Money Laundering Group (ESAAMLG), Inter Governmental Action Group against Money Laundering in West Africa (GIABA) Middle East and North Africa Financial Action Task Force (MENAFATF) Task Force on Money Laundering in Central Africa (GABAC).

¹⁷ The Forty Recommendations on Money Laundering (1990) of Financial Action Task Force, [electronic version], accessed on 03 April 2022, at: <https://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF%20Recommendations%201990.pdf>

¹⁸ Strasbourg Convention, approved for ratification by Resolution of the Assembly of the Republic No 70/97 of 13/12; ratified by Presidential Decree No 73/97 of 13/12. Published in the *Diário da República I-A*, No 287, of 13/12/1997 (Resolution of the Assembly of the Republic No 70/97).

At the Community level, Council Directive 91/308/EEC of 10 June 1991 on prevention of the use of the financial system for the purpose of money laundering, defined the scope of a preventive framework based essentially on the binding of financial sector entities to a set of duties. The instrument echoed the recommendations of FATF, specifically providing for the establishment of “adequate internal control and reporting processes to prevent and hinder money laundering operations”, by credit institutions and other financial institutions, deriving from drugs trafficking.

In accordance with FATF Recommendation 16, the establishment of a mandatory system for reporting financial transactions to authorities when suspected¹⁹ of having resulted from criminal activities was achieved. That obligation related exclusively to financial institutions, which, in regard of their privileged position, would be in a position to detect and prevent any abusive conduct from clients and thereby contribute to the preservation, reputation and integrity of the financial system.

The expansion of crime, in particular transnational organised crime, has led States to work together towards a more effective global response. Thus, in November 2000, the United Nations adopted the Convention against Transnational Organised Crime²⁰, extending the scope of the criminalisation for money laundering to other predicate serious offences and promoting enhanced international cooperation²¹ and exchange of information. It also proposed to strengthen the supervision of banks and other financial institutions and the creation of a Financial Intelligence Unit²² whose competences would be to collect, analyse and disseminate information relating to the prevention of money laundering.

¹⁹ By Instruction No 70/96 of 17 June 1996, the Central Bank of Portugal defined the criterion for assessing the degree of suspicion of a given financial transaction. As expressly stated in that legislation, the suspicion did not necessarily imply the existence of evidence confirming the commission of the criminal activity, but rather arose from the assessment of the specific circumstances in which the transaction was carried out, by reference to the standard criterion of the ‘average man’. Cf. [Electronic version], accessed on April 03, 2022, at: <https://www.bportugal.pt/instrucao/7096>).

²⁰ Palermo Convention approved for ratification by Resolution of the Assembly of the Republic No 32/2004 of 02/04; ratified by Presidential Decree No 19/2004 of 02/04. Published in the *Diário da República* I-A, No 79, of 02/04/2004 (Resolution of the Assembly of the Republic No 32/2004).

²¹ Euclides Dâmaso Simões in “The importance of international judicial cooperation in combating money laundering”, Portuguese Criminal Science Magazine, Coimbra Editora, Coimbra, 2006, A. 16, No 3, July-September, pp. 423-424. In the same sense, Anabela Miranda Rodrigues regards judicial and police cooperation, along with legislative harmonization as necessary tools to combat the new crime that develops in the borderless European context, in “Emerging European Penal Law”, Coimbra Editora, 2008, p. 151.

²² Cf. Article 7(1) (b) of the Convention against Transnational Organized Crime, “Each State Party:”...“...shall consider the establishment of a financial intelligence unit to serve as a national center for the collection, analysis and dissemination of information regarding potential money laundering.” [Electronic version], accessed on 03 April 2022, at: www.unodc.org and https://www.imolin.org/pdf/imolin/Overview%20Update_0107.pdf.

The Council of Europe Convention on Money Laundering, Search, Seizure and Confiscation of the Proceeds of Crime and on the Financing of Terrorism has adopted the following definition “*Financial Intelligence Unit means a central, national unit responsible for receiving (and, if permitted, requesting), analyzing and disseminating to competent authorities information of a financial nature (i) on presumed proceeds and potential means of terrorist financing; or (ii) required by national laws or regulations aimed at combating money laundering and terrorist financing*”. Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 adopted the same definition by including it in No. 37 and Article 32 as a ‘*central national unit*’, which is ‘*operationally independent and autonomous*’ responsible for ‘*collecting and analyzing the information they receive with the aim of establishing links between suspicious transactions and their predicate criminal activities in order to prevent and combat money laundering and terrorist financing*’. In Portugal, the Financial Intelligence Unit was set up by Decree-Law No 304/2002 of 13 December and placed under the organizational authority of the National Directorate of the Criminal Police, in accordance with Law No 37/2008 of 6 August. In accordance with Article 27(1) and (3) of Decree-Law No 137/2019 of 13 September approving the new organizational structure of the Criminal Police, the ‘FIU shall be responsible for collecting, centralizing, processing and disseminating information at national level concerning the prevention and investigation of offences involving the laundering of advantages of illegal provenance, the financing of terrorism and tax crimes, ensuring, at internal level, cooperation

Subsequently, Directive 2001/97/EC of the European Parliament and of the Council of the European Union of 4 December, amended Directive 91/308/EEC by introducing a broader notion of money laundering. This was achieved by including other predicate offences and by extending the range of obliged entities, including natural and legal persons in the performance of certain professional activities²³.

Following the terrorist attacks in USA, on 11 September 2001, FATF issued guidelines for financial institutions to develop new practices to adapt their procedures for the detection and deterrence of transactions with funds linked to terrorist financing and to strengthen their overall internal and external audit processes²⁴ (cf. Consideration 7). The document praised the importance of the financial institutions in detecting and reporting suspicious financial transactions which, with the United Nations International Convention for the Suppression of the Financing of Terrorism, started to be assessed on the basis of a criterion²⁵ combining the ‘complexity’ and the ‘frequency’ of the transaction.

The regime for the prevention of money laundering gained momentum in 2003 with the United Nations Convention against Corruption²⁶, which required States to establish comprehensive internal regulatory and supervisory rules for banks and non-banking financial institutions in the fight against money laundering²⁷.

Later that year, the FATF revised and expanded the 40 Recommendations on the prevention of money laundering and terrorist financing and stressed the importance for financial institutions, to implement “anti-money laundering programmes” with “appropriate compliance management arrangements”, “employee training programme”, “independent audit function”, as well as the appointment of a “compliance officer at the management level” (Recommendation 15).

Two new instruments on the prevention of money laundering were adopted on 26 October 2005. Regulation (EC) No 1889/2005 of the European Parliament and of the Council of the European Union, on the control of cash entering and leaving the Community, and Directive 2005/60/CE²⁸ of the European Parliament and of the Council of the European Union, on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing, establishing, among others, the concept of politically exposed person and the

and coordination with the judicial authority, with the supervisory and control authorities and with the financial and non-financial entities provided for in Law No 83/2017 of 18 August, and at international level, cooperation with financial intelligence units or similar structures’, which may also integrate ‘officials of the Taxes and Customs Authority and other supervisory authorities or government services and structures, in a manner to be defined by ministerial order, in accordance with the rules applicable to them’.

²³ Article 2 A now provides for credit institutions, financial institutions, as well as a range of natural and legal persons who carry out their professional activities (Auditors, external accountants and tax advisors; Real estate agents; Notaries and other independent legal professionals, high-value traders and casinos).

²⁴ Guidance for Financial Institutions in Detecting Terrorist Financing, Financial Action Task Force on Money Laundering. [Electronic version], accessed on 03 April 2022, at: <https://www.fatf-gafi.org/content/dam/fatf-gafi/guidance/Guidance%20for%20financial%20institutions%20in%20detecting%20terrorist%20financing.pdf>.

²⁵ Article 18 (1) (b) of the United Nations International Convention for the Elimination of the Financing of Terrorism provides for the “*adoption of regulations requiring financial institutions to report promptly to the competent authorities all complex transactions of an unusual size and all unusual types of transactions which do not have an obvious economic purpose or a clear legal purpose, without fear of criminal or civil liability arising from the breach of confidentiality obligations, if the statements are made in good faith;*”

²⁶ Adopted by Resolution of the Assembly of the Republic No 47/2007 of 31/09; ratified by Presidential Decree No 97/2007. It was published in the Official Gazette No 183 of 31/09/2007 (Resolution of the Assembly of the Republic No 47/2007).

²⁷ Cf. Article 14 of the United Nations Convention.

²⁸ Directive 2006/70/EC of the Commission of the European Communities of 1 August lays down implementing measures for Directive 2005/60/EC as regards the definition of politically exposed persons and the technical criteria for simplified customer due diligence procedures, and for exemption on the basis of a financial activity carried out on an occasional or very limited basis.

provision of appropriate policies and procedures for internal control, risk management, compliance and reporting of suspicious transactions by obliged entities.

Regulation 1781/2006 of the European Parliament and of the Council, of 15 November, laid down rules on the information concerning transfers of funds, whereas Directive 2009/110/EC of the European Parliament and of the Council, on the taking up, pursuit and prudential supervision of the business of electronic money institutions, bound electronic money institutions to the anti-money laundering regime. Subsequently, Regulation 2015/847 of 20 May established new rules with a view to achieving greater uniformity in the implementation of international standards to combat money laundering and the financing of terrorism and proliferation, which had been defined by FATF in 2012.

On the same occasion, the European Parliament and the Council adopted Directive 2015/849²⁹ on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing, introducing changes to the subjective scope (with the inclusion of new entities), the establishment of a three-dimensional competence-based risk assessment process and the strengthening of beneficial ownership identification measures and the institutional cooperation framework.

With the firm aim of strengthening the protection of the financial system, two new instruments emerged in 2018. Directive (EU) 2018/843 of 9 July, of the European Parliament and of the Council of 20 May, also known as the ‘5th AML Directive’, provided for a tightening of the criminal law framework for money laundering, the possible accountability of legal entities and the strengthening of cross-border judicial and police cooperation. Directive (EU) 2018/1673 of the European Parliament and of the Council, of 23 October, required the adoption of measures to harmonise the criminalisation of money laundering and the establishment of a system of penalties consistent with the cross-border dimension, taking into account the (new) risks to money laundering and the financing of illicit activities arising from the use of virtual currencies.

B Money laundering in the domestic legal system

Under the heading ‘Money Laundering’, Article 368-A of the Penal Code gives concrete expression into national law to the principle of depriving³⁰ criminals of the proceeds of their activities, stated in the 1988 United Nations Convention. In succinct terms, money laundering can be described as ‘the activity by which the criminal origin of property or proceeds is concealed, seeking to give them a legal appearance’³¹. The object of money laundering is, therefore, the proceeds or assets derived from the commission, in any form of assistance, of a predicate offence, defined by the use of a mixed criterion, combining a catalogue of offences, a general clause relating to the seriousness of the predicate offence, valued according to the applicable penalty, and, in addition, a reference to a list of criminal offences set out in separate law³².

Money laundering constitutes a derived or secondary crime, in the sense that it is conditional on the existence of predicate offence, even if not culpable and punishable, from which the

²⁹ Amended Regulation (EU) No 648/2012 of the European Parliament and of the Council and revoked Directive 2005/60/EC of the European Parliament and of the Council, as well as Commission Directive 2006/70/EC.

³⁰ Money laundering is the process whereby perpetrators of criminal activities conceal the origin of assets and income (proceeds) obtained unlawfully, turning the liquidity arising from those activities into legally reusable capital by concealing the origin or the real owner of the funds. Money Laundering and Terrorist Financing Portal. Accessed on 03 April 2022, at: <http://www.portalbcft.pt/pt-pt/content/branqueamento-de-capitais>.

³¹ Nuno Brandão, cit, p.15.

³² Paulo Pinto de Albuquerque – Commentary on the Penal Code in the light of the Constitution of the Republic and the European Convention on Human Rights, 3rd updated edition, Universidade Católica Editora, 2015, pp. 1152-1157.

advantages derive (objective condition for punishment)³³. This is to say, that it starts from the principle of a unlawful act, but it ‘does not depend on conviction for the previous offence, or even on its prosecution in the country of origin of the advantages, assets or rights, since that is implied in the principle of the autonomy of the money laundering offence laid down in Article 368- A of the Penal Code’³⁴, even though it results in an autonomous offence to the predicate and common crime, which may be committed by any person, since it does not require the offender to have any special quality.

It is risk posed offense as far as the actual impairment of the legal interest protected may not occur, as referred to by Vitalino Canas, for whom the legal interest protected by the incriminating rule is not limited to the protection of the administration or realisation of justice, but to a number of interests pursued³⁵. By contrast, Paulo Pinto de Albuquerque takes the view that criminalisation is aimed at the realisation of justice, as manifested in the pursuit and confiscation of the proceeds of criminal activity³⁶.

The criminalisation of money laundering in the domestic legal system took place through Decree-Law No 15/93 of 22 January, which transposed the objectives and rules laid down in the 1988 United Nations Convention, creating a specific regime for forfeiture of the proceeds from drug-related offences³⁷, making the derogation from banking secrecy a special investigative technique, as expressly stated in the Convention on Laundering, Screening, Seizure and Confiscation of the Proceeds from Crime³⁸.

Later that year, Decree-Law No 313/93 of 15 September³⁹ laid down a set of special preventive duties to be observed by certain operators in the financial sector⁴⁰, non-compliance with which gave rise to liability for administrative offences.

Decree-Law No 325/95 of 2 December⁴¹ extended the criminalisation of money laundering to other forms of previous serious crime and gave the scope of preventive measures to entities in the non-financial sector⁴². This was followed by legislative amendments which increased the catalogue of primary offences relating to money laundering, in particular by Law No 65/98 of 2 September on incitement to prostitution, trafficking in human beings, including minors, and by Law No 10/2002 of 11 February on trafficking in nuclear products, trafficking in human organs or tissues, pornography involving minors, trafficking in species, tax fraud and crimes

³³ Vitalino Canas – The Money Laundering Offence: Prevention and repression regime. Coimbra: Almedina, 2004, p. 149,

³⁴ Judgment of the Court of Appeal of Lisbon on 06/06/2017, proceeding No. 208/13.9TELSB.G.L1-5

³⁵ Vitalino Canas – cit, p. 20.

³⁶ Paulo Pinto de Albuquerque – cit, p. 1152.

³⁷ Article 23, entitled ‘*Conversion, transfer and concealment of property or proceeds*’, the seizure and confiscation of proceeds from drugs trafficking.

³⁸ Council of Europe Convention No. 141 on Money Laundering, Search, Seizure and Confiscation of the Proceeds of Crime was adopted by the Committee of Ministers of the Council of Europe in September 1990.

³⁹ Transposed Council Directive 91/308/EEC of 10 June on the prevention of the use of the financial system for purposes of money laundering.

⁴⁰ The measures were addressed to credit institutions, financial companies, insurance companies, in so far as they carry out activities under the ‘Life’ branch, and companies managing pension funds, which had their registered office in Portuguese territory. Branches and general agencies located in Portuguese territory of those entities having their head office abroad and external financial branches, were also covered. The law also applied to entities operating the public postal service to the extent that they provided financial services.

⁴¹ Established preventive and repressive measures against money laundering and other property derived from crime.

⁴² The law included in the range of obliged entities, casinos, entities active in the real estate mediation sector, the purchase and resale of real estate, the marketing of tickets or bearer securities and high value goods, cf. Articles 4 to 8 of Decree-Law No 325/95.

punishable by imprisonment with a maximum limit of more than 5 years. This legislation has (further) extended the subjective scope of obliged entities⁴³.

A mirror of the extension of preventive duties in the banking sector is Circular No 17/99/DSB of 16 July from the Central Bank of Portugal, which imposed compliance with the obligations related to the prevention of money laundering as far as suspicious transactions are concerned, even those predicate to tax offences.

Law No 11/2004 of 27 March⁴⁴ added money laundering to the Criminal Code by including it in Article 368-A, under the title 'Laundering', laying down new preventive duties which were further developed in Law No 25/2008 of 5 June⁴⁵, and unifying the regimes for the prevention and suppression of money laundering and terrorist financing. It should be noted that with regard to the duty of control, Article 21 has imposed on obliged entities the definition and implementation of adequate and effective internal policies and procedures to comply with internal duties, risk assessment and management and internal audit, within the framework of prevention against money laundering and terrorist financing. Subsequently, by means of Notice No 5/2013 of 18 December, the Central Bank of Portugal regulated the conditions, mechanisms and procedures necessary for the effective fulfilment of the preventive duties of money laundering and terrorism financing laid down in Chapter II of Law No 25/2008, of 5 June, in the context of the provision of financial services subject to the supervision of the Central Bank of Portugal.

A new *Anti-Money Laundering* legislative package, consisting of four pieces of legislation, emerged in August 2017. Law No 83/2017 of 18 August⁴⁶, laying down measures to combat money laundering and the financing of terrorism, which, in the meantime, has been regulated by the Central Bank of Portugal by means of Notice No 2/2018 of 26 September 2007; Law No 89/2017 of 21 August approving the legal regime governing the Central Register of the Beneficial Owner (RCBE)⁴⁷; Article 27(1) of Law No 92/2017 of 22 August, which required

⁴³ Articles 8 A, 'accountants, external auditors and fund carriers', and Article 8 B, entitled 'Other entities', have been added, which now includes notaries, registrars, or any other entities involved in the purchase and sale of immovable property or commercial entities, transactions in funds, securities or other assets belonging to clients, opening or managing savings or securities bank accounts, the creation, operation or management of companies, trusts or similar structures and the execution of any financial transactions.

⁴⁴ It transposed into Portuguese national law Directive 2001/97/EC of 4 December, which introduced an essentially preventive and punitive regime against the laundering of proceeds of illegal origin.

⁴⁵ Transposed into Portuguese law Directives 2005/60/EC of the European Parliament and of the Council of 26 October and Commission Directive 2006/70/EC of 1 August on the prevention of the use of the financial system and of activities and professions specially designated for the purpose of money laundering and terrorist financing.

⁴⁶ It partially transposed Directives (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 and (EU) 2016/2258 of 6 December 2016 amending the Penal Code and the Industrial Property Code and revoking Law No 25/2008 of 5 June and Decree-Law No 125/2008 of 21 July.

⁴⁷ The transposition into Portuguese law of Chapter III of Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 entailed, in accordance with Article 1 (2) of Law No 89/2017 of 21 August, amendments to:

- (a) Real Estate Register Code, approved by Decree-Law No 224/84 of 6 July;
- (b) Commercial Register Code, approved by Decree-Law No 403/86 of 3 December;
- (c) Decree-Law No 352-A/88 of 3 October governing the establishment and operation of companies or branches of off-shore trusts in Madeira Free Trade Zone;
- (d) Decree-Law No 149/94 of 25 May regulating the register of trust instruments;
- (e) Notaries Code, approved by Decree-Law No 207/95 of 14 August;
- (f) the National Register of Legal Persons, approved as an annex to Decree-Law No 129/98 of 13 May;
- (g) Regulation on the Fees of Registries and Notaries, approved by Decree-Law No 322-A/2001 of 14 December;
- (h) Decree-Law No 8/2007 of 17 January creating simplified business information;
- (i) Decree-Law No 117/2011 of 15 December approving the Organizational Law of the Ministry of Finance;
- (j) Decree-Law No 118/2011 of 15 December approving the organization of the Taxes and Customs Authority;
- (k) Decree-Law No 123/2011 of 29 December approving the Organizational Law of the Ministry of Justice;

the use of specific means of payment in transactions involving amounts of EUR 3,000 or more⁴⁸; and Law No 97/2017 of 23 August⁴⁹, on the implementation and enforcement of restrictive measures approved by the UN and the EU, provided that ‘entities with legal powers of supervision or control in relation to the prevention of money laundering and terrorist financing’ are to verify ‘whether the entities subject to their supervision or control put in place the appropriate means and mechanisms to comply with the restrictive measures adopted by the United Nations or the European Union, including the specificities and duties provided for in this Law.

As mentioned above, Notice No 2/2018 of 26 September of the Central Bank of Portugal regulated the conditions of exercise, procedures, instruments, mechanisms, implementation formalities, reporting obligations and the other aspects necessary to ensure compliance with the preventive obligations of money laundering and terrorism financing, laid down in Law No 83/2017 of 18 August, as well as the means and mechanisms necessary to comply with those obligations, adopted by Law No 97/2017, and the measures that payment service providers were required to take in order to detect transfers of funds in which information on the payer or payee was missing or incomplete.

As we will see below, with regard to the monitoring obligation, Article 16 of Law No 83/2017, of 18 August, provided for the designation of an administrative body responsible for policies, procedures and controls, in matters relating to the prevention of money laundering, and of a person responsible for compliance with the rules, who is responsible for ensuring the effective implementation of policies and procedures and controls appropriate to the effective management of money laundering risks, and the monitoring of compliance with the relevant legislative framework, the failure of which is now sanctioned by Law No 58/2020, of 31 August⁵⁰, as a particularly serious administrative offence, in accordance with Article 169- A, sub-paragraph (g) of that law.

III. Internal control and compliance in banking activity

A Internal control system

The importance of adequate internal control procedures in credit institutions was emphasised by Directive 89/646/EEC (Second Council Directive) of 15 December 1989 on the taking up and pursuit of the business of credit institutions. It was necessary to ascertain, as it is also expressly apparent from the considerations in that instrument, whether the activity of an institution in its jurisdiction complied with the laws and the principles of sound administrative and accounting organisation, as well as with proper internal control, particularly since, as

(l) Decree-Law No 148/2012 of 12 July approving the organization of the Instituto dos Registos e do Notariado, I.P.;

(m) Decree-Law No 14/2013 of 28 January, which establishes the systematization and harmonization of legislation relating to the Taxes Identification Number;

(n) Corporate Income Tax Code, approved by Decree-Law No 442-B/88 of 30 November.

⁴⁸ Amending the General Tax Law and the General Tax Offences regime by adding Article 63 E (prohibition of cash payment), making the offence subject to the imposition of a fine between EUR 180 and EUR 4,500, in accordance with Article 129 RGIT.

⁴⁹ It now regulates the implementation and enforcement of restrictive measures adopted by the United Nations or the European Union and lays down the system of penalties applicable to violations of these measures.

⁵⁰ It transposed into national law Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018, which amended Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and Directive (EU) 2018/1673 of the European Parliament and of the Council of 23 October 2018 on combating money laundering through penal law, by amending several laws.

Viúdez Carmona⁵¹ pointed out in a publication dating back to the 80s in relation to the Spanish banking services, the internal control mechanisms essentially consisted of the keeping of detailed records on the transactions carried out.

With regard to the prevention of the use of the financial system for the purpose of carrying out money laundering operations linked to drugs trafficking, Decree-Law No 313/93 of 15 September, which transposed Directive 91/308/EEC into the Portuguese law, required credit institutions to set up internal control procedures and a mandatory system for reporting suspicious transactions.

With Instruction No 72/96 of 17 June, the Central Bank of Portugal defined ‘prevention of the institution’s involvement in money laundering operations’ as one of the fundamental objectives to be pursued by the internal control system to be implemented by credit institutions and financial corporations, depending on the size of the institution itself and the nature and risk associated with the activities carried out.

In 1998, the Basel Committee outlined the principles of the internal control system in credit institutions through the publication of the *Framework for Internal Control Systems in Banking Organisations*⁵² as a critical process in the banking organisation, whose main objectives were:

- Effective and efficient use of assets and resources (performance objectives);
- Confidence, completeness and relevance of financial information in decision-making within the banking organisation (information objectives);
- Compliance with law and regulations, supervisory requirements and policies and other procedures (compliance objectives);

The adoption of an internal control system in banking institutions became mandatory with Decree-Law No 104/2007 of April 03⁵³, which laid down requirements for the quality of financial institutions’ own funds with a view to increasing their robustness, making the internal control system a key element for the stability of financial institutions and thus contributing not only to compliance with legal obligations, but also to compliance with the risk management policies inherent in the activities carried out by institutions.

However, it was by Notice No 5/2008 of 25 June that the Central Bank of Portugal formulated the definition and objectives of the internal control system, which it characterised as a ‘set of strategies, systems, processes, policies and procedures defined by the management body, as well as the actions undertaken by this body and by the other staff of the institution, with a view to ensuring:

- Efficient and cost-effective performance of the business, over the medium to long term (performance objectives), which ensures the effective use of assets and resources, business continuity and the survival of the institution itself, including through adequate management and control of the business risks, prudent and appropriate evaluation of assets and liabilities, and the implementation of protection mechanisms against unauthorised, intentional or negligent uses;

⁵¹ Manuel Viúdez Carmona, “Los Controles Internos en Banca”, in *Revista Española de Financiación y Contabilidad*, Vol. XIX, n. 58, 1989, p. 365. [versão eletrónica] acedida em 6 de novembro de 2018, em: <https://dialnet.unirioja.es/>

⁵² Basle Committee on Banking Supervision. [Electronic version], accessed on 6 November 2018, at: <https://www.bis.org/publ/bcbs40.pdf>.

⁵³ It amended the General Rules for Credit Institutions and Financial Companies (RGICSF), transposing into national law Directive 2006/48/EC of the European Parliament and of the Council of 14 June relating to the access and pursuit of the business of credit institutions. Article 22 of Directive 2006/48/EC stated that “*The competent authorities of the home Member State shall require credit institutions to have robust corporate governance arrangements, including a clear organizational structure with well-defined, transparent and consistent lines of responsibility, effective processes to identify, manage, monitor and report the risks to which it is or might be exposed, and adequate internal control mechanisms, including sound administrative and accounting procedures.*”.

- The existence of comprehensive, relevant, reliable and timely financial and management information (information objectives) supporting decision-making and control processes, both internally and externally;
- Compliance with applicable laws and regulations (compliance objectives), including those relating to the prevention of money laundering and terrorism financing, as well as professional and ethical standards and usages, internal and statutory rules, rules of conduct and relationships with customers, guidelines of social bodies and recommendations of the Basel Committee on Banking Supervision and the Committee of European Banking Supervisors (CEBS), in order to protect the reputation of the institution and to prevent it from being sanctioned.”

We therefore conclude that the internal control system, the implementation and maintenance of which was the responsibility of the management body⁵⁴, now consists of at least three functions – risk management, compliance and internal audit⁵⁵ – without prejudice to the fact that it can be complemented by appropriate specific, independent and autonomous means of receiving, processing and archiving reports of serious irregularities⁵⁶.

However, the internal control system is not a finished product, instead it must be subject to monitoring, evaluation and review of the adequacy and effectiveness of the policies and procedures that make it up, as set out in Law No 83/2017 and Notice No 2/2018 of the Central Bank of Portugal, which require it to be reviewed by means of periodic and independent evaluations, to be carried out at intervals not exceeding 12 months, or up to a maximum of 24 months, where justified by the nature, size and complexity of the activity pursued by the financial entity and the specific operating reality or business area concerned, and in addition the review of the effective risk management model, and of the practices suitable for identifying, assessing and mitigating the risks of money laundering.

Recognising the special importance that the regulation of conduct and organisational and governance culture and internal control carried over financial entities, the Central Bank of Portugal published Notice No 3/2020 carrying out an in-depth review of the internal control systems regulations contained in the above-mentioned Notice No 5, including the latest developments in European and Portuguese legislation on these matters, the guidelines of the European Banking Authority, international best practices and practical supervisory experience accumulated by the Central Bank of Portugal, promoting an integrated and holistic view of the various matters as a means of ensuring legal certainty.

The various amendments include the role of administrative and supervisory bodies in promoting an organisational culture based⁵⁷ on high standards of ethical requirements, which cumulatively:

- Promote an integrated risk culture that covers all areas of activity of the institution and that ensures the identification, evaluation, monitoring and control of the risks to which the institution is or might be exposed;
- Promote responsible and prudent professional conduct, to be observed by all employees and members of the administrative and supervisory bodies in the performance of their duties, guided by high ethical standards provided for in an institution’s own code of conduct;

⁵⁴ In that regard, Ana Perestrelo de Oliveira states that compliance and internal control fall within the scope of the duties of organization, supervision and control of directors, in *Corporate Governance Manual*, Almedina, 2018, p. 302.

⁵⁵ On the objectives of the various functions, see Diogo Pereira Duarte/Francisco Passaradas, ‘Risk management, compliance and internal audit’, in *Banking Law Studies I*, Almedina, 2018, pp. 200-201.

⁵⁶ Cf. João Pedro Castro Mendes in “Financial Stability, Principle of Proportionality and Microprudential Supervision”, in *Banking Law Studies I*, Almedina, 2018, pp. 61-62.

⁵⁷ Cf. artigo 2.º, entitled “Organizational Culture”, of Notice n.º 3/2020.

- Contribute to strengthening the institution's levels of confidence and reputation, whether internally or in established relationships with clients, investors, supervisors and other third parties.

We note that the role of the institution's management body is greatly strengthened by establishing and maintaining an internal control system covering the institution as a whole⁵⁸, translated "into a set of strategies, policies, processes, systems and procedures with the aim of ensuring the medium and long-term sustainability of the institution and the prudent conduct of its business"⁵⁹, but also to ensure the promotion of "a control environment that values internal control as an essential element for the long-term resilience and performance of the institution"⁶⁰ and to approve "after the prior opinion of the supervisory body; the code of conduct and the internal policies and regulations that develop and implement it, setting out, amongst other aspects, the responsibilities of the internal control functions, the procedures for the regular verification of their compliance, the measures to prevent, identify, manage and mitigate conflicts of interest and the associated reporting duties"⁶¹.

Moreover, the internal control system is now 'defined taking into account the principle of proportionality and the degree of centralisation of authority and delegation established within the institution'⁶² and consists of 'permanent and effective internal control functions with status, authority and independence in the organisational structure'⁶³, allocated to 'management units which are organisationally segregated from the activities they monitor and control' autonomously and independently from each other⁶⁴, except where the institution 'is not entitled to receive deposits, and in so far as it adopts the necessary mechanisms to prevent or mitigate the risk of conflicts of interest' pursuant to Article 16 (a) and (b) of Notice No 3/2020.

The Central Bank of Portugal recently published a draft notice⁶⁵ on the prevention of money laundering and terrorism financing for public consultation, with which it intends to revoke Notice No 2/2018 of 26 September and Instruction No 2/2021 of 26 February, and to gather in a single piece of legislation the substantive rules applicable in this area, aiming at greater simplicity, clarity and flexibility in the regulatory provisions, even though, in the medium term, the adoption of a new European legal framework on this subject is likely to occur⁶⁶.

Among the proposals is the provision contained in Article 3, entitled 'Enforcement function', by providing that financial entities are to ensure the existence of a monitoring and enforcement function with regard to the prevention of money laundering and terrorism financing, in particular:

⁵⁸ Cf. article 12.º, n.º 2, of Notice No. 3/2020

⁵⁹ Cf. article 12.º, n.º 1, of Notice No. 3/2020 – nomeadamente, através: a) Do cumprimento dos objetivos estabelecidos no planeamento estratégico, com base na realização eficiente das operações, na utilização eficiente dos recursos da instituição e na salvaguarda dos seus ativos; b) Da adequada identificação, avaliação, acompanhamento e controlo dos riscos a que a instituição está ou pode vir a estar exposta; c) Da existência de informação financeira e não financeira completa, pertinente, fiável e tempestiva; d) Da adoção de procedimentos contabilísticos sólidos; e) Do cumprimento da legislação, da regulamentação e das orientações aplicáveis à atividade da instituição, emitidas pelas autoridades competentes, do cumprimento dos normativos internos da própria instituição, bem como das normas e usos profissionais e deontológicos e das regras de conduta e de relacionamento com clientes.

⁶⁰ Cf. article 3.º, n.º 1, subparagraph d), of Notice No. 3/2020.

⁶¹ Cf. article 4.º, n.º 3, of Notice No. 3/2020.

⁶² Cf. article 13.º, n.º 1, of Notice No. 3/2020.

⁶³ Cf. article 13.º, n.º 2, subparagraph a), of Notice No. 3/2020.

⁶⁴ Cf. article 15.º, n.º 1 and 2, of Notice No. 3/2020.

⁶⁵ The draft notice was under public consultation until 10 March 2022.

⁶⁶ Among other things, the notice regulates the recording, reporting and frequency of information to be provided by notaries, solicitors and lawyers, for the purposes of Law No 78/2021 of 24 November, establishing the framework for preventing and combating unauthorized financial activity and consumer protection.

- The definition and effective implementation of the policies, as well as the procedures and controls appropriate to the effective management of the risks of money laundering and terrorism financing to which the financial entity is or might be exposed;
- The financial entity's compliance with the laws and regulations relating to the prevention of money laundering and terrorism financing.

A second aspect to be highlighted is the combination of Article 73, paragraph 1, subparagraphs (b) and (c), and Article 3, paragraph 2 of Law No 83/2017 of 18 August, which makes payment institutions and electronic money institutions established in another Member State of the European Union, when operating through agents or distributors, subject to the provisions of that law, and obliged to designate “a member of the administrative body responsible for compliance with the legal framework in force in Portugal for the prevention of money laundering and terrorism financing” and “a person responsible for compliance with the rules”⁶⁷.

Finally, the increasing importance of the Financial Intelligence Unit as a reliable and credible source of information for the identification, assessment and mitigation of the concrete risks of money laundering and terrorism financing, in accordance with Article 6 of Notice No 2/2018, but also in defining and implementing the policies and procedures of the internal control system of obliged entities, in conjunction with Article 8 of Notice/Public Consultation No 1/2022, with Article 12 of Law No 83/2017 of 18 August, contributing to an adequate risk management of the activities carried out by the institutions and the promotion of an organisational culture of good compliance based on strong ethical values.

B Compliance and prevention of money laundering

The economic downturn that hit the western world in the 70s, in the last century, put in crisis state intervention, opening the door to the implementation of economic policies based on neo-liberal ideology, which resulted in the search for more flexible, simplified and modern regulation. It is true that globalisation and constant technological advances have contributed to improving the development of economic activity, but they have created new risks⁶⁸ and exposed weaknesses and flaws in corporate organisation and governance systems⁶⁹, which have led to the adoption of procedures and mechanisms based on moral and ethical principles, which are based on best practices as a means of facilitating the implementation of a business culture of good compliance and respect for legality.

As Anabela Miranda Rodrigues⁷⁰ points out, a new model of (regulated) self-regulation took the form of corporate governance and compliance guidelines, a new form of public intervention in which the State assumed a more sophisticated control position. A new form of business regulation that had lost its strictly private nature, turning into a reality externally conditioned by the public authorities, whereby the State had defined structures and established the processes necessary for its development and for the pursuit of certain public purposes or interests⁷¹.

⁶⁷ Cf. article 73.º, n.º 2, subparagraphs a) and b), of the Notice of the Central Bank of Portugal submitted to public consultation.

⁶⁸ In this context, Anabela Miranda Rodrigues in *The Emerging European Penal Law*, Coimbra Editora, 2008, p.171.

⁶⁹ With regard to the liability of legal persons, João Castro and Sousa points out that the very establishment and operation of legal persons facilitates the emergence of certain illegal activities and operations *in*: Legal persons, in the light of criminal law and the so-called ‘law of mere social order, Biblioteca Jurídica Coimbra Editora, 1985, p.86.

⁷⁰ Anabela Miranda Rodrigues in “A regulated self-regulation. Corporate Governance and Compliance”, in: *Economic Penal Law, A Criminal Policy in the Compliance Era* Almedina, 2019, p. 45.

⁷¹ Cf. Ogus, A., “Self-regulation”, in B. Bouckaert y G. De Geest, *Encyclopedia of Law and Economics*, 1999, p. 588, cit. Arroyo Jiménez, Luis, “Introducción a la Autorregulación”, *Autorregulación y Sanciones*, editorial Lex Nova, 2008, p. 24., available at <https://dialnet.unirioja.es/servlet/articulo?codigo=4632380>.

Compliance⁷² is thus an instrument of corporate supervision, which aims to ensure that companies and their bodies comply with existing law and, ultimately, to ensure the integrity of the institution and the preservation of its assets.

On the basis of the principles affirmed by the Basel Committee in *Compliance and the Compliance Function in Banks*, the Central Bank of Portugal published Notice No 5/2008 of 25 June, which characterised the compliance function⁷³ as independent, permanent and effective, the institution of which was entrusted to the management body⁷⁴ through a formal process and the responsibility to provide it with adequate material and human resources to perform effectively ‘the prevention, follow-up and mitigation of the corresponding risk, in the form of the possibility of allocating the financial situation of business entities, as a result of actions or omissions in breach of applicable and materialised rules’⁷⁵.

With regard to the prevention of money laundering, Law No 83/2017 of 18 August places particular emphasis on the implementation of control policies and procedures in view of the potential risk of harm to legal-penal assets posed by such activities. Those measures amount, according to Anabela Miranda Rodrigues, to the creation of compliance programmes⁷⁶ addressed to the institution itself and to the persons forming part of its organisation, making them subject to compliance with the rules and to constant monitoring and supervision. The compliance programme is designed and structured on the knowledge of the institution and its activities in such a way as to promote the integrity of the institution and a culture of compliance, which is the first condition for its effectiveness⁷⁷.

C Compliance Function and Compliance Officer

Law No 83/2017 of 18 August extended the application of the anti-money laundering regime to a number of new entities (financial, non-financial and equivalent) and required the creation of the role of the person responsible for compliance⁷⁸ with the rules, who is now responsible for ensuring the effective implementation of the policies and procedures and control appropriate to the effective management of the risks of money laundering and terrorism financing to which

⁷² *International Compliance Association* defines compliance as “the ability to act according to an order, set of rules or upon request”, cf. <https://www.int-comp.org/careers/your-career-in-compliance/what-is-compliance/>. João Labareda believes that the term is broad and that the appropriate alternative is to use the word “compliance”, in: *Contribution to the Study of the Monitoring System and Compliance Function*, Studies of the Securities Institute, p. 7. [Electronic version] accessed on 10 October 2019 at: <https://www.institutovaloresmobiliarios.pt/estudos/pdfs/1394634232compliance-jl-2013.pdf>.

⁷³ Introduced into Portuguese national law by Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004. Cf. Diogo Pereira Duarte/Francisco Passaradas, cit., pp. 207-208.

⁷⁴ Germano Marques da Silva states that it is the responsibility of the administration to organize and direct the business of the company, setting up preventive mechanisms on how to take action to prevent the commission of unlawful acts, criminal liability of companies and their directors and representatives, Editorial Verbo, 2009, p. 267.

⁷⁵ João Labareda describes the “compliance monitoring system” as corresponding to the universe of the modes of organization, resources, processes and instruments used, defined policies and action programmes, the ‘compliance function’, corresponding work and the structure set up to achieve the objectives set by it. *Contribution to the Study of the Control System and Compliance Function*, cit., p. 8

⁷⁶ Anabela Miranda Rodrigues states that there is a wide spectrum of entities obliged to set up compliance or compliance programmes. *Economic Penal Law – A Criminal Policy in the Compliance Era*, Almedina, 2019, p. 129.

⁷⁷ Teresa Quintela de Brito distinguishes between legal compliance aimed at preventing crimes from other types of acts whose primary purpose is not specifically criminal, in the ‘Relevance of compliance mechanisms in the criminal liability of legal persons and the respective managers’, in: *Anatomy of Crime – Magazine of Legal and Criminal Sciences*, No. 0, 2014, Almedina, p. 75.

⁷⁸ In this regard, Tiago Ponces de Carvalho on institutionalisation of a “true compliance function” for the non-financial sector, “Due Diligence and compliance in the new Anti-Money Laundering and Terrorist Financing Law”, in *Vida Judiciária*, January/February | 2018, p. 36.

the financial entity is or might be exposed, in accordance with Article 2, paragraph 1, subparagraph j) of Notice No 2/2018 of the Central Bank of Portugal.

Although close to the figure of the person responsible for the compliance function, which had been established by Notice No 5/2008 of the Central Bank of Portugal, it appears that the person responsible for the fulfilment of the duties is appointed from among the members of the senior management or equivalent and has more comprehensive and exclusive powers, cf. Article 16 (2) of Law No 83/2017 of 18 August.

He/she shall in particular:

- Participate in the definition and give prior opinion on policies and procedures and controls aimed at preventing money laundering and terrorism financing;
- Continuously monitor the adequacy, sufficiency and timeliness of policies and procedures and controls in relation to the prevention of money laundering and terrorism financing by proposing the necessary updates;
- Participate in the definition, monitoring and evaluation of the obliged entity's internal training policy;
- Ensure the centralisation of all relevant information from the different business areas of the obliged entity;
- To play the role of intermediary for judicial, law enforcement and supervisory and control authorities, in particular by complying with the reporting obligation laid down in Article 43, and ensuring the fulfilment of other reporting and cooperation obligations.

The person responsible for compliance with the legal framework is also responsible for giving a favourable opinion on training, whether internal or external, concerning the prevention of money laundering (see Article 55) and complying with the duty to keep the documents and the analysis collected or drawn up in the context of compliance with this Notice (cf. Articles 4 and 51 of the mentioned Law).

Although separate, the Central Bank of Portugal's Notice No 2/2018 allows compliance tasks to be cumulated with those of monitoring the regulatory framework where the requirements laid down in Article 7 (5) are cumulatively met, provided that the person responsible for complying with the rules is not subject to potential conflicts arising from the assignment of responsibilities which conflict with the function of monitoring compliance with the regulatory framework or with the compliance function.

The approximation between the two figures is even more explicit if we consider that they both hold essential functions and, as such, are subject to the rules governing the suitability of members of the administrative and supervisory bodies of credit institutions, under Article 30 A of the RGICSF⁷⁹ [*Legal Framework of Credit Institutions and Financial Companies*], whose assessment and verification of the requirements of good repute, professional qualification and availability is a matter for credit institutions and must be documented in its own report, without prejudice to any preventive monitoring by the Central Bank of Portugal under Article 30 B of the RGICSF.

Accordingly, Articles 17 (1) and (2) and 18 of Notice No 3/2020 of the Central Bank of Portugal state that 'the persons responsible for the functions of the internal control shall belong to the senior management of the institution, shall not perform any other functions within the institution and shall carry out their functions independently' and that 'they shall not, in the performance of their duties, be subordinate to the executive member of the management body who is responsible for managing the activities which each internal control function monitors and controls'⁸⁰, further acknowledging in Article 18(1) of the same Notice No 3/2020 that "the

⁷⁹ Decree-Law No 157/2014 of 24 October, transposing Directive 2013/36/EU, recognized the existence of some positions in credit institutions whose holders, although they were not members of the administrative or supervisory bodies, exercised functions giving them a significant influence on the management of the credit institution.

⁸⁰ Cf. article 17, of Notice No. 3/2020.

suitability of those who manage risk, compliance and internal audit function is subject to authorisation for the exercise of functions by the competent supervisory authority”, i.e. that we are in the presence of key function holders and, as such, they are subject to the suitability regime of members of the management and supervisory bodies of credit institutions, as indicated above.

D Compliance programmes and criminal liability

Recently, the European Commission published a report on the alleged involvement of several European Union credit institutions in cases of money laundering between the years 2010 and 2018. The *post-mortem*⁸¹ report, as it became known, points to a number of shortcomings in the processes of implementing systems for the prevention of money laundering and terrorism financing, including those resulting from poor internal organisation, the pursuit and prioritisation of high-risk business models, the absence and/or ineffectiveness of systems and compliance mechanisms for money laundering and, in some cases, failure to comply with the obligation to report suspicious transactions to Financial Intelligence Units.

These shortcomings lead us to question the importance of the monitoring and compliance mechanisms in excluding credit institutions from criminal liability in relation to money laundering, since there is no doubt that they⁸² preclude strong anti-money laundering obligations which require the adoption of sophisticated internal control policies and procedures proportionate to the nature, scale and complexity of the activity carried out, the breach of which renders the institution liable for administrative offences, as is also apparent from Articles 161 and 169 A (c), in conjunction with Article 12, of Law No 83/2017 of 18 August.

In addition to this liability (administrative offence), however, we may wonder whether failure to comply or defective performance of compliance obligations may render the banking institution criminally liable⁸³ for the offence of money laundering, under Article 11 of the Penal Code (PC), as amended by Law No 59/2007 of 4 September (the provision of which lays down the model of the liability of the legal person for a specific act and fault). Having satisfied the first criterion (since the offence of money laundering forms part of the catalogue of offences provided for in that type), we conclude that the attribution of the offence to the institution will necessarily involve determining, at a later stage, whether the act was committed in the name or on behalf of the person in question and in the pursuit of his direct or indirect social interest, by the person occupying a leading position within it, or by a person acting in his name or on his behalf and in his direct or indirect interest, under the authority of a person in a leading position by reason of a breach of his duties of supervision or control, under the new wording of Article 11 (2) (a) and (b), of the PC, by Law No 94/2021 of 21 December, which extended the criminal liability of legal persons or equivalent entities, with the inclusion of other types of offences.

According to Neves da Costa⁸⁴, the national legal system does not allow exemption from liability of a legal person for the mere existence of a compliance programme, even if it has not been effective in preventing the commission of the unlawful act, because no compliance programme is capable of eliminating the risk of criminal offences being committed. On the

⁸¹ COM(2019) 373 Final – Report from the Commission to the European Parliament and the Council on the assessment of recent alleged money laundering cases involving EU credit institutions, de 24/07/2019. https://ec.europa.eu/info/files/report-assessing-recent-alleged-money-laundering-cases-involving-eu-credit-institutions_en.

⁸² Tiago Ponces de Carvalho on extending the adoption of regulatory compliance programs to the non-financial sector. “The Compliance officer and the regime of criminal liability of legal persons in the new Anti-Money Laundering and Terrorist Financing Law”, *Vida Judiciária*, September – October, 2017, p. 26.

⁸³ On the liability of legal persons, João Castro e Sousa, cit., p.86.

⁸⁴ Cf. José Neves da Costa in “Criminal liability of credit institutions and of the Chief Compliance Officer in money laundering offences, in: Studies on Law Enforcement, Compliance and Penal Law (org.: Maria Fernanda Palma, Augusto Silva Dias, Paulo Sousa Mendes), Almedina, 2018, p. 329.

other hand, he wonders whether the compliance programme can be regarded as ‘express orders or instructions’ under the clause excluding liability under Article 11 (6) of the Criminal Code. In answering that question, we follow closely the view taken by Teresa Quintela de Brito⁸⁵, who, with regard to the analysis of the judgment of the Oporto Court of Appeal of 27 June 2012, states that the exclusion of liability does not depend on the express nature of the order or instruction contrary to the practice of the punishable act, but on the clarity, effectiveness and efficiency of that order or instruction, having regard to the actual method of organisation, operation and legal and economic action of the legal person, in order to draw the conclusion that the mere formal existence of a compliance programme cannot be regarded as a ground for exculpatory action on the part of the legal person, nor does the absence thereof necessarily give rise to fault on the part of the person. Thus, the reputed professor states that the culture of loyalty to the law implemented and embraced in the legal and economic organisation, operation and action of the legal person will always be the most revealing and that that culture is independent of the formal existence of a compliance programme.

As Susana Aires de Sousa rightly points out, it is not apparent from the aforementioned that such programmes are necessarily irrelevant, since the compliance programme is used as a means of excusing the institution’s willingness to comply with the law. Their existence may be weighed up in determining the extent of the penalty by weighing and assessing the criteria and factors legally laid down in Article 71 of the Penal Code⁸⁶.

In that sense, it seems to follow Law No 94/2021, of 21 December, approving measures provided for in the National Anti-Corruption Strategy⁸⁷, introducing a number of significant amendments to the PC and CPP, in particular as regards the substantive relevance of compliance, helping to clarify whether the act was committed on behalf of and in the functional and organisational interest of the collective body, but also to characterise the model of ethical culture and compliance with the rules actually in place, especially since the adoption and implementation of a programme of compliance appropriate to prevent the commission of crime or crimes of the same kind⁸⁸ becomes relevant for the purposes of suspending coercion measures⁸⁹ and determining and specifically mitigating the penalties to be imposed on the legal person or equivalent person, it may even be imposed by the court⁹⁰ and, in certain cases, be monitored and supervised by a court representative⁹¹.

It therefore seems possible to conclude that, even if there were an appropriate compliance programme in credit institutions, it would not be possible to conclude that the clause excluding criminal liability laid down in Article 11 (6) of the penal Code had been established, but it would be important to take account of the corporate culture of the institution, which reflects the way in which it is organised, operated and acted, in order to determine the institution’s possible criminal liability.

⁸⁵ Teresa Quintela de Brito, cit., p. 75-91.

⁸⁶ Cf. Susana Aires de Sousa, *Fundamental Issues in Corporate Criminal Law*, Almedina, 2019, p 134

⁸⁷ Introduced relevant amendments to a number of laws (Law No 34/87 of 16 July, which determines the crimes of responsibility of political office holders; Law No 36/94 of 29 September establishing measures to combat corruption and economic and financial crime; Law No 50/2007 of 31 August establishing a new system of criminal liability for conducts that might affect the truth, loyalty and correction of competition and its outcome in sporting activities; Law No 20/2008 of 21 April establishing the new criminal regime for corruption in international trade and in the private sector, complying with Council Framework Decision No 2003/568/JHA of 22 July, the Criminal Code, approved by Decree-Law No 400/82 of 23 September, the Commercial Companies Code, approved by Decree-Law No 262/86 of 2 September, and the Code of Criminal Procedure, approved by Decree-Law No 78/87 of 17 February.

⁸⁸ Cf. article 90.º-A, n.º 4, 5 and 6 of Law No. 94/2021, of 21 December.

⁸⁹ Cf. article 204, n.º 3 of Law No. 94/2021, of 21 December.

⁹⁰ Cf. article 90.º-G, n.º 1, subparagraph b) of Law No. 94/2021, of 21 December.

⁹¹ Cf. article 90.º-E, n.º 1 and 2 of Law No. 94/2021, of 21 December.

IV. Conclusions

On the basis of the foregoing, it seems possible to conclude that, although built around the combat against drugs trafficking and organised crime, the phenomenon of money laundering has evolved, and does so primarily through the financial system, promoting the emergence of new risks for society which undermine the soundness and integrity of institutions and confidence in the financial system itself.

In response to such threats, the international community has been pushing forward the development of a regulatory framework that is essentially preventive in nature, based on recognised international standards which impose high compliance obligations on banks and an effort to maintain and update procedures and mechanisms, but whose existence does not, in itself, prevent the occurrence of criminal offences, nor does it exempt financial institutions from criminal liability.

It is true that recent legislative developments have brought important innovations in the substantive relevance of compliance programmes as part of a function of the internal control system that seeks to ensure resilience and good performance in order to ensure the sustainability of the (whole) institution, and whose adoption and (adequate) implementation is a decisive criterion in determining and alleviating the penalties to be imposed on legal entities, and may even be subject to enforcement and monitoring by the court.

However, despite repeated efforts to prevent money laundering, recent cases have exposed weaknesses in credit institutions which cast doubt on the effectiveness of the solutions adopted and reinforce the importance of promoting and developing an organisational culture based on strong ethical values of loyalty to Law and good compliance across the institution as a means of (effectively) preventing illicit behaviour, but also of ensuring the sustainability of institutions and the preservation of financial stability, which is essential for economic development.

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<http://www.fatf-gafi.org/> – Financial Action Task Force on Money Laundering

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The Formation Mechanism of Projectile Entry Wound on Skin

József Volarics¹

The background of the article is a shooting experiment, which was carried out in 2017. According to our experiences, the classical explanation of the formation mechanism of entry wound on skin is not adequate. The goal was to perform a new experiment to document and analyse the formation mechanism of entry wound. The secondary topic was a comparison of the GRS and traces of smokeless propellant and black powder. Different firearms and a bow were used. The velocity of the projectiles were measured, and was calculated an average for each weapon. During the test pork knuckles were shot from the same distance. The hits were documented with a high-speed camera. The high-speed - 16-30,000 fps record shows the impact of the projectile and the reaction of the skin surface in detail. Taking into account the results, the classical explanation must be modified.

Key words: wound ballistics, human skin, entry wound, axis rotation

I. Introduction

In 2017 I was requested to participate writing a textbook in field of criminal ballistics for University of Public Service, in Hungary. I worked as a co-author with Pol.Lt.Col. dr. Miklós Angyal, who is expert of forensic medicine. We finished the textbook, but due changes in circumstances, it was not released at the university.

The textbook was entered for the competition of Police Scientific Council in 2020, where it won a prize. It was eventually published online in 2021.

We made a shooting test to modelise the projectile entry wounds on skin. During this process we used pigskin to replacement the human skin. As that known these two types of skins are very similar, that we can see on the pictures. There is an entry wound on human skin from crime scene (Picture 1), and an entry wound on pig skin (Picture 2). Both of them were caused by 9 mm Luger FMJ projectile from 1 m distance. The characteristic of these entry wounds are very similar.

Picture 1 and 2: Entry wounds on human and pig skin



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During the shooting test, we modelised the main types of entry wounds. There are two examples of these. The first is a contact shot with muzzle imprint, and stellated, blackened margin. This stellated or star shaped entry wound was created by the effect of gases which penetrated under the skin (Picture 3).²

Picture 3: Contact entry wound



The entry wound on the third picture is from an arrow „shot” from a crossbow. The arrow was equipped with a field point. This type of arrowhead has no blade or edge, but is conical and similar to the projectile of a firearm. The result was very interesting, because the entry wound looked like a stab wound (Picture 4).³ We knew the reason of this characteristic was the velocity. But we didn't know, what happened exactly. The speed of arrows shot from bows and crossbows is significantly lower than that of projectiles from firearms, and they are usually wing stabilized.

Picture 4: Entry wound of an arrow

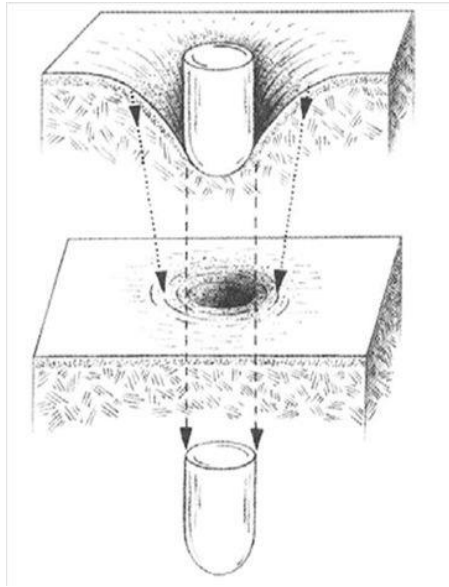


² Forensic ballistic study submitted for the competition of Police Science Council, 58

³ Forensic ballistic study submitted for the competition of Police Science Council, 53

Forensic medicine provides an explanation for the mechanism of entry wound formation (Picture 5)⁴: The impacting projectile is pressing in the surface of the skin. The skin is stretching in the shape of a cone (as an elastic material). The projectile is breaking the skin in the center, destroying the skin tissue by the axis rotation.

Picture 5: Schema of the formation mechanism of projectile entry wound



But the known data of the projectile's flight also show there is something wrong about the classic theory:

- Muzzle velocity of 9 mm Luger projectile: 350 (- 400) m/s
- Axis rotation: 3000/sec

What does it mean? Approximately 116 (-133) mm of flight during an axis rotation. During the modelling experiment we shot at various materials, not only pigskin. The projectile entry holes were documented. The original goal was to establish of a collection as a database for the crime scene investigators. That's when we experienced the second interesting result. The entry hole on tire is very different from an entry wound on skin. On the tire we can see a round inprint, and a small hole with 1-2 mm diameter. If according to the classical explanation, skin behaves as an elastic material, why didn't regain its original shape like a tire (picture 6).⁵

⁴ In: Examination of physical injuries (*Testi sérülések vizsgálata és véleményezése, Bűnügyi-Technikai füzetek I.*), 9

⁵ Angyal Miklós, Volarics József: Forensic ballistics Part II (*Kriminalisztikai Ballisztika*), 120. In: Rendőrségi Tanulmányok - 4. évf. 3. sz. (2021.)
https://epa.oszk.hu/04000/04093/00016/pdf/EPA04093_rendorsegi_tanulmanyok_2021_3_094-134.pdf
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Picture 6: Entry hole on tire



I found an objection in the literature: „The inertia of the hit skin precludes significant deformation of the skin at impact speeds of 200 to 300 m/s.”⁶ A new test was needed to answer the question.

II. Method and participants

According to the plan we used to shoot with different firearms, approximately 9 mm caliber. Except for the AK carbine in caliber 7,62 mm, which was used demonstrating the effect of high-speed impact. By using a projectile velocity measurement device we calculated the average muzzle velocity of each firearm. The human skin was replaced by pig skin this time as well. We documented the hits with a high-speed camera.

The test was a team-work. The team members were:

- Pol. Maj. Gábor Gönczöl from the Rapid Response Special Police Services, National Bureau of Investigation, Criminal Forensics Department. He is an expert of firearms, supervisory officer, crime scene investigator. His role was practical organisation, and managing modern firearms.
- Mr. Tamás Szabolics, lead development engineer, communications officer at Fusion Plasma Physics Department, Atomic Energy Research Institute, Centre for Energy Research, Eötvös Lóránd Research. They work on the emergency stop system of fusion plasma powerplant which will be built in France in 2050. They lent us a high-speed camera, which was managed by Mr. Szabolics.
- Dr. Bálint Morlin, Assistant professor, historical reenactor from Budapest University of Technology and Economics, Department of Polymer engineering. He lent a percussion revolver, and shot with the muzzle loaders as a specialist.
- Pol. Lt. Col. József Volarics, expert of firearms, supervisory officer, CSI, from the RRSPS NBI Criminal Forensics Department. The mastermind of the test, practical organisation, and using the bow as a historical reenactor.

Finally, a special thank you to those who were not present during the test but helped with the work.

⁶ Ferenc Halasi (1998): Wound ballistics (*Sebballisztika*), Bolyai János College of Military Technology, Department of Military Sciences, Budapest, 40-45.

- Pol.Lt.Col. Attila Szakács, expert of firearms at Central Police Headquarters of Budapest. He lent a projectile velocity measurement device.
- Mr. Balázs Németh, history teacher, specialist of historical shooting, sport shooter, hunter. Owner of „Kapszli Pont”. He lent a Model 1777 flintlock pistol, and propellant for muzzle loaders.
- Zsolt Ujvári forensic expert, botanist at Hungarian Institute For Forensic, Directorate of Forensic Expertise. He took the macroscopic pictures of human hair.

III. Test shooting

A *First „Shot”*

The first used weapon was a nomadic bow, with 38 pounds draw weight⁷. The arrows was made with conical metal arrowheads, without blades and edges, these forms are similar to a projectile of modern firearm. The average starting velocity of the arrow was 35 m/s. We used it to modelise the effect of an extreme low velocity projectile in descending branch of the trajectory. The hits were recorded by high speed camera, the framing rate was 16,000 fps⁸. On the record we can see the point of the impacting arrow is pressing in the surface of the skin, which is stretching in the shape of a cone. Finally the arrow is stabbing through the skin in the center (Picture 7).

Picture 7: The impacting arrowhead



On the on hand, it corresponds the classic explanation of the formation mechanism of the projectile entry wound. The only different is that there is no axis rotation, because the projectile is a wing stabilized arrow. On the other hand, the mechanism as the same than the formation mechanism of the stabbing wound.

B *Second „Shot”*

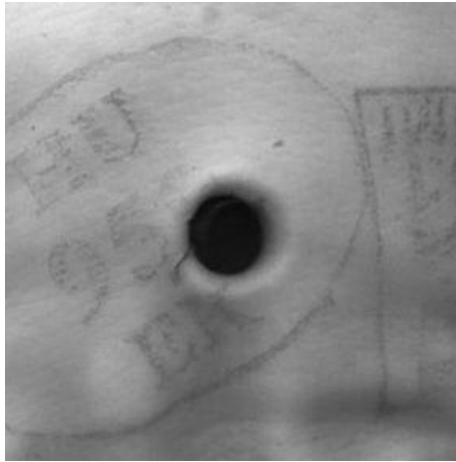
The second used weapon was the first real firearm, a Pietta's replica of Colt Navy. It is a single action, percussion revolver with rifled barrel. It's caliber is .36, which is approximately 9 mm. All of the charges contained parabolic lead projectile, corkwood wad, black powder, and percussion cup. Chambers were closed by wax based ointment to prevent the chain fire. The average muzzle velocity was 170 m/s, which can be considered low.

⁷ Draw weight is the amount of force needed to pull a bow.

⁸ Frame per second

The hits were recorded by high speed camera, the framing rate was 16,000 fps. We can see when the projectile is impacting on the surface of the skin, and is breaking through it. During the hit the skin is not stretching, but the impact is starting a concentric shockwave on the surface of it (Picture 8).

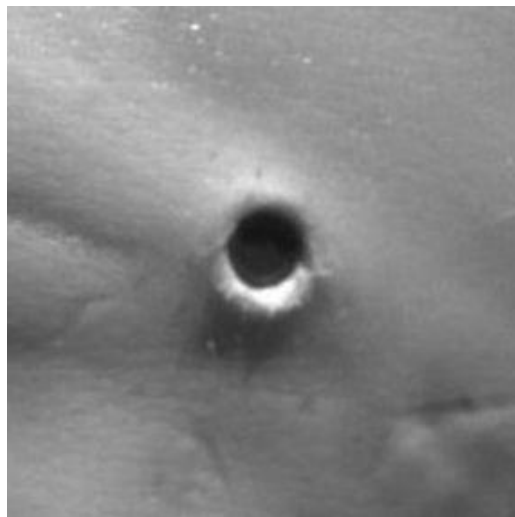
Picture 8: The impact of a .36 caliber projectile



C Third „Shot”

The third weapon was a .380 ACP (9 mm Browning short) caliber, FÉG⁹ B9RK semi-automatic pistol. The average velocity of the parabolic FMJ¹⁰ projectile was 270 m/s. The hits were recorded by high speed camera, the framing rate was 16,000 fps. Can be seen in the record, when the projectile is impacting, the particles of skin tissue is splashing out in shape of a coronet around the projectile which breaking through the the skin. At the same time the impact is starting a shockwave on the surface of the skin (Picture 9).

Picture 9: The .380 ACP caliber projectile is impacting



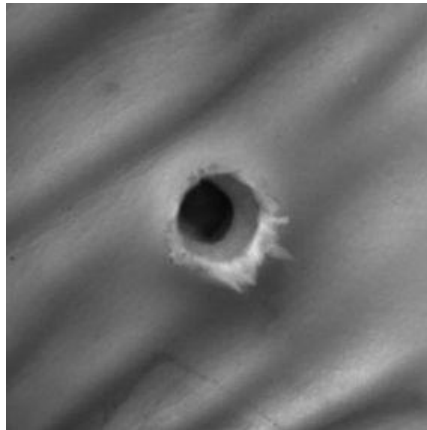
⁹ Fegyver és Gázkészülék Gyár, Hungary

¹⁰ Full Metal Jacket

D Fourth „Shot”

The fourth weapon was a 9 mm Luger (.38 Luger) kaliber CZ¹¹ P-07 semi-automatic pistol. The average velocity of the parabolic FMJ projectile was 350 m/s. The hits were recorded by high speed camera, the framing rate was 16,000 fps. In the record we can see when the impacting projectile is breaking through the surface of the skin, and the skin tissue splashing out in coronet shape. The formation of a shock wave is possible, but it does not appear in all cases. After the hit the temporary cavity is pushing out the surface of the skin around the entry wound, but the temporary cavity is not the subject of this study, it will be formed after the entry wound (Picture 10).

Picture 10: The impacting 9 mm Luger caliber projectile

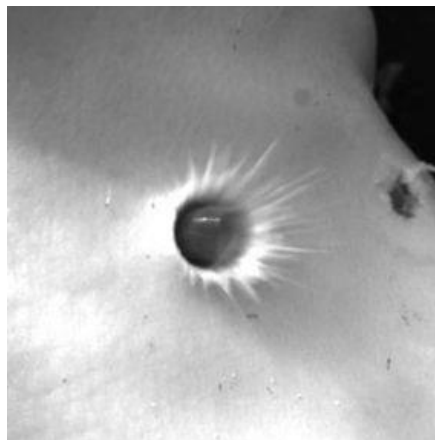


E Fifth „Shot”

The fifth weapon was a 7,62 x 39 mm (43 M) FÉG ÖR SA85M semi-automatic carbine, which is a sport version of the famous AK assault rifle. The average velocity of the ogival FMJ projectile was 700 m/s.

The hits were recorded by high speed camera, the framing rate was 30,000 fps. Can be seen in the record, when the projectile is impacting on the surface of the skin, and breaking through it. The coronal spillage is very distinctive - as if the skin was a liquid surface. After the hit the temporary cavity is pushing out the surface of the skin around the entry wound (Picture 11).

Picture 11: The impact of a 7,62 mm (43 M) caliber projectile

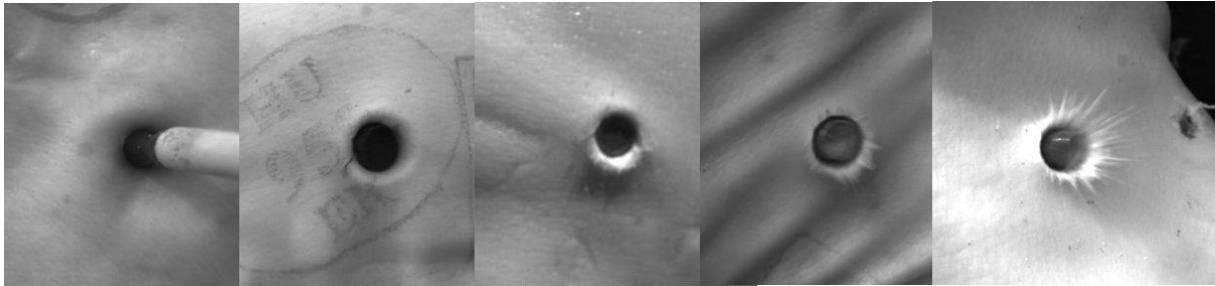


¹¹ Ceska Zbrojovka, Czech Republic

IV. Conclusion

During the test skin is only in case of extreme low - 35 m/s velocity projectile behaved as an elastic material. There is no any evidence of role the axis rotation during the entry wound formation. The video records show that the shock wave from the projectile destroys the skin tissue (Picture 12).

Picture 12: Comparison of the impacting of projectiles



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Examination of physical injuries (*Testi sérülések vizsgálata és véleményezése, Bűnügyi-technikai füzetek I.*),

Possible Applications of Annealing in Forensic Glass Examinations

Tamás Vörös¹, Krisztina Takács², Attila Szabó³, Attila Krizsán⁴

The question that typically arises and requires forensic examinations in connection with crimes involving the breaking of glasses (e.g. burglary, vandalism) is whether the glass fragments recovered from the suspect's clothing can originate from any of the broken objects found on the scene of the crime. A widely used method in the forensic investigation of glass is the refractive index measurement, which – in contrast to the elemental analytical methods e.g. μ -XRF or LA-ICP-MS – can also be applied to fragments in the size range of a few tens of micrometers. If the recovered fragments and the reference have the same refractive index, it is probable that they originate from the same source. These investigations can be supplemented by the heat treatment of the glass samples under controlled conditions followed by the measurement of the refractive index. As a result of annealing, a structural rearrangement takes place in the glass fragments and the refractive index changes. The extent of this change is typical of the glass type due to the different internal stress present in different types of glass. In addition to establishing a more precise relationship of origin, this method also makes it possible to determine glasses by type. Annealing has also been successfully applied in cases where the reference sample has previously been altered by heat or fire during the crime, hence the direct comparison would have given false negative results. The primary aim of this work is to present the results of our experiments carried out at the Hungarian Institute for Forensic Sciences, as well as the possible applications of the annealing of glass fragments in real forensic cases.

Keywords: glass, crime evidence, microtrace, annealing, refractive index, comparative analysis

I. Introduction

The forensic glass examination carried out in Hungary goes back more than six decades, whose brief history, development, as well as the steps and methods of the examination have already been presented.⁵ The most frequently asked question in forensic glass examinations is whether there are glass fragments in the clothes or on the objects submitted for testing and, if so, then they can originate from the same source as the reference sample. It primarily means a comparative examination, which can be carried out on the basis of visual color, type, thickness, surface coating, elemental composition, and refractive index (RI) data, depending on the size of the recovered glass fragments. The purpose of this paper is to present an additional examination method, the so called annealing, which, in addition to confirming the results of the comparative tests, makes it possible to determine the type of the questioned glass fragments. Furthermore, it can be used to examine glasses exposed to thermal stress.

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³ Attila Szabó, firefighter lieutenant colonel, head of Disaster Management Research Institute, Budapest, Hungary. E-mail: attila.szabo3@katved.gov.hu, orcid.org/0000-0001-9029-6842

⁴ Attila Krizsán, firefighter captain, examiner, Disaster Management Research Institute, Budapest, Hungary. E-mail: attila.krizsan@katved.gov.hu, orcid.org/0000-0002-4832-9505

⁵ Vörös T., Sándorné Kovács J., 'Kriminalisztikai üvegvizsgálat a Nemzeti Szakértői és Kutató központban', *Belügyi Szemle*, 69 (2020), 177–194.

Depending on the production technology, different types of glass have different levels of internal structural stress. During the production of toughened (safety or security) glass, the pane is heated above the deformation temperature and then cooled down rapidly. This process does not develop the structural equilibrium associated with low temperatures. It results in significant structural stress for this type of glass, which remains in the micro-sized fragments produced during the breakage of the glass pane. If the glass pane is cooled down gradually and slowly during production (e.g. in the case of non-toughened glass), the structural equilibrium corresponding to the low temperature is more likely to develop. The internal stress in the fragments produced during the breaking of such type of glass is much lower compared to that of toughened glass.

The degree of internal stress can easily be checked with the help of heat treatment and subsequent refractive index measurement. During this process, the refractive index of the questioned fragments is measured, and then the fragments are heated above the deformation temperature (approx. 600-650 °C). In this state, a structural rearrangement may take place, and with slow cooling, a significant reduction of the internal stress and a (near) equilibrium state corresponding to room temperature can be achieved, which results in an increase in the RI. The degree of the RI change is related to the original internal stress, thus characteristic of the type of glass from which the fragment originates. In recent years, the examination of the change in the refractive index caused by heat treatment has been successfully applied in several areas. In addition to confirming the results of comparative tests, clarifying the conditions of origin, and determining the type of glass, it also proved effective in comparative tests where the reference glass sample was significantly affected by heat or fire after the glass was broken. In this paper, we would like to present these application possibilities through model experiments and investigations in forensic cases.

II. Glass type determination

The first experiments to distinguish glasses by type using heat treatment were carried out by Locke et al.⁶ The refractive index values of 85 glass samples were measured before (RI_{before}) and after (RI_{after}) several hours of heat treatment at 500-550 °C. In their experiments, the RI increment by annealing ($\Delta RI = RI_{\text{after}} - RI_{\text{before}}$) was approximately 0.00020-0.00150 for non-toughened and container glasses, while for toughened glasses, values between 0.00160 and 0.00220 were observed. Based on their results, the different types of glass – toughened and non-toughened – can be clearly distinguished by heat treatment. This finding was confirmed in several later experiments.^{7,8,9} In 2020, the refractive index change of 25-25 container, non-toughened and toughened glasses were examined by annealing at the Hungarian Institute for Forensic Sciences.¹⁰ In these experiments, the fragments of the investigated glass samples were broken into two parts. The refractive index on one was measured, while the other was kept at 700 °C for 4 hours, allowed to cool down to room temperature and then the value of the RI was determined. The measured ΔRI values for each type of glass are listed in Table 1.

⁶ Locke, J., Sanger, D. G., Roopnarine, G., 'The identification of toughened glass by annealing' *Forensic Science International*, 20 (1982), 295–301.

⁷ Locke, J., Hayes, C. A., 'Refractive index variations across glass objects and the influence of annealing', *Forensic Science International*, 26 (1984), 147–157.

⁸ Winstanley, R., Rydeard, C., 'Concepts of annealing applied to small glass fragments', *Forensic Science International*, 29 (1985), 1-10.

⁹ Marcouiller, J. M., 'A Revised Glass Annealing Method to Distinguish Glass Types', *Journal of Forensic Sciences*, 35 (1990), 554–559.

¹⁰ Vörös T., Takács K., Réger P., 'Refractive index variations of glass microfragments by annealing – forensic applications', *Journal of Silicate Based and Composite Materials*, 72 (2020), 205–209.

Table 1: The refractive index changes (ΔRI) of 25-25 container, non-toughened and toughened glasses by annealing examined in the Hungarian Institute for Forensic Sciences.

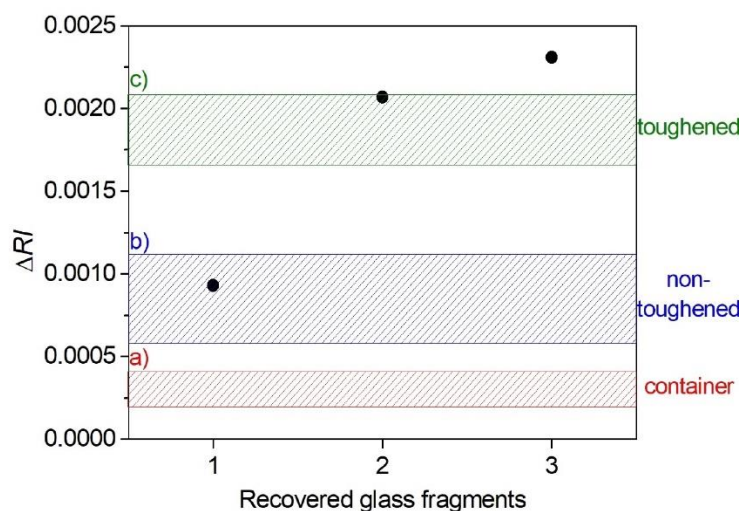
Glass type	ΔRI
container	0.00020 – 0.00040
non-toughened	0.00060 – 0.00113
toughened	0.00166 – 0.00207

It can be observed that the ΔRI ranges do not overlap with each other, which means that the method is suitable for determining the type of glass which the questioned fragment originates from. Annealing can also be used in cases where the investigated fragment is in the few tens of micrometers size range, so the type cannot be determined based on morphological characteristics or by any other technique. In 2022, we had the opportunity to apply the above results in a real forensic case, in which the following question had to be answered: "If glass fragments can be detected on the item of clothing sent for investigation, can it be determined that it comes from a beer bottle?"

Altogether three glass fragments (1-3), in the size range of 100-200 micrometers, were found in the residue of the item after shaking, which were suitable for performing the annealing experiments.

The observed ΔRI values were 0.00093, 0.00207, and 0.00231, respectively. Figure 1 compares these results with the values measured in our Institute on different types of glasses and shows that the questioned fragments cannot originate from a beer bottle. Presumably, one of the fragments is non-toughened, while the other two most likely come from toughened glass. The value of 0.00231 is 0.00024 higher than the refractive index change value of the toughened glasses examined by us, but it is important to note that such a large ΔRI value can occur with tempered glasses based on previous literature data.¹¹

Figure 1: The refractive index changes (ΔRI) of 25-25 container (a), non-toughened (b) and toughened (c) glasses by annealing examined in the Hungarian Institute for Forensic Sciences, as well as the appropriate ΔRI values of three (1-3) recovered glass fragments examined in a real forensic case.



¹¹ Locke, J., Rockett, L. A., 'The application of annealing to improve the discrimination between glasses', *Forensic Science International*, 29 (1985), 237-245.

III. Examination of origin

The primary aim of forensic glass investigation is to establish the relationships of origin, if possible, based on the results of several independent test methods. In these cases, we look for properties that can be easily examined both on the reference sample and on the recovered fragments, which typically fall into the micro-sized range (<1 mm). Among the comparative techniques already mentioned in the Introduction, these fragments are primarily suitable for refractive index measurements only, as further comparative examination with an independent method (e.g. determination of elemental composition) is not possible due to their small size. The refractive index can be measured with an accuracy of five decimal places. Based on our measurements, the standard deviation values in the case of glass fragments are typically around 0.0001 or higher, so a more precise measurement than the one currently used is not necessary. However, there are significantly more glass objects in the world than the number of possible different measurement data.¹² It follows that if the refractive index of two glass fragments is the same, only a certain degree of probability of origin can be established, not a categorical match. One way to determine the possible origin more precisely is to compare the RI after annealing and it was successfully applied in the examination of the glass samples of the CTS (Collaborative Testing Services) proficiency test No. 20-5481.¹³ In this test, it was necessary to determine whether the recovered fragments marked as Item 2 and Item 3 could originate from the broken glass aquarium represented by the control sample marked as Item 1. Many parameters including the color, type and thickness of the glass fragments, as well as their refractive index and elemental composition measured by X-ray fluorescence analysis were the same for the three items. In order to confirm the possibility of origin from the same source, each fragment was kept in a furnace at 650 °C for 4 hours, and then they were slowly cooled back to room temperature. The RI values measured before and after the heat treatment are presented in Table 2 and Figure 2. It can be observed that the data measured after the heat treatment also support the origin from the same source and are consistent with the results of other examinations. Based on the change in the refractive index values and the data in Figure 1, it can also be seen that all three investigated items are probably pieces of a non-toughened glass.

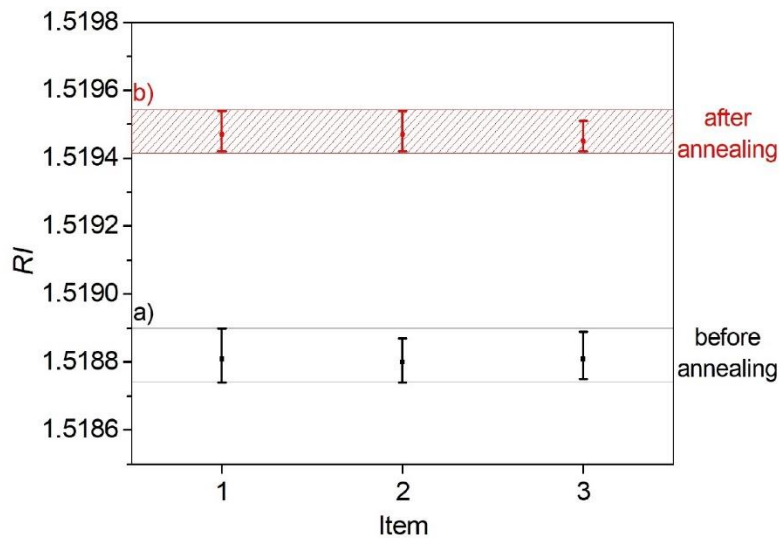
Table 2: The average, minimum, and maximum RI values observed for Items 1-3 of the CTS proficiency test No. 20-5481 before and after annealing, together with the differences of the average RI values.

Item	Before annealing			After annealing			$\Delta RI_{avg.}$
	$RI_{avg.}$	$RI_{min.}$	$RI_{max.}$	$RI_{avg.}$	$RI_{min.}$	$RI_{max.}$	
1	1.51881	1.51874	1.51890	1.51947	1.51942	1.51954	0.00066
2	1.51880	1.51874	1.51887	1.51947	1.51942	1.51954	0.00067
3	1.51881	1.51875	1.51889	1.51945	1.51942	1.51951	0.00066

¹² Lambert, J. A., Evett, I. W., 'The refractive index distribution of control glass samples examined by the Forensic Science Laboratories in the United Kingdom', *Forensic Science International*, 26 (1984), 1–23.

¹³ Glass Analysis Test No. 20-5481 Summary Report. Online: <https://cts-forensics.com/reports/>

Figure 2: The average, minimum and maximum RI values observed for Items 1-3 of the CTS proficiency test No. 20-5481 before (a) and after (b) annealing.

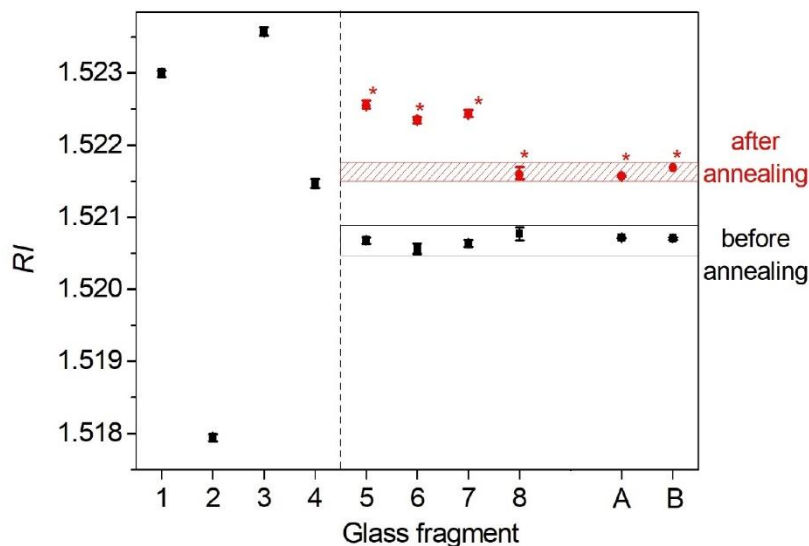


In addition to increasing the degree of probability of origin from the same source, the refractive index measurement, together with annealing can also be suitable for distinguishing between glasses from different sources, but originally with the same refractive index. In a case investigated at the HIFS in 2019, eight reference samples from different broken windows of a motor vehicle were sent by the authority. Among these, the RI values of four control samples (1-4) were clearly different from each other and also from the further control samples, while the RIs of the other four samples (5-8) were very close to each other. Two glass fragments (A and B) were found in the residue of the questioned piece of clothing whose RI values were similar to the control samples 5-8, so their origin could not be clearly determined. To establish the conditions of origin more precisely, each piece of the control samples, as well as the fragments A and B, were subjected to heat treatment at 650 °C for 4 hours, and then, after slow cooling, their refractive index values were measured. It can be seen both in Table 3 and in Figure 3 that control sample number 8 can be clearly distinguished from the samples numbered 5, 6 and 7, since in the former case, the change in the RI due to heat treatment is 0.00082, while for the other three glass samples, the ΔRI values are between 0.00179 and 0.00187.

Table 3: The average, minimum, and maximum RI values observed for eight control samples (1-8) and two recovered fragments (A-B) in a real case before and after annealing, together with the differences of the average RI values.

Glass fragment	Before annealing			After annealing			$\Delta RI_{avg.}$
	$RI_{avg.}$	$RI_{min.}$	$RI_{max.}$	$RI_{avg.}$	$RI_{min.}$	$RI_{max.}$	
1	1.52301	1.52295	1.52304	not investigated			
2	1.51795	1.51789	1.51799				
3	1.52357	1.52352	1.52364				
4	1.52146	1.52141	1.52153				
5	1.52068	1.52063	1.52072	1.52255	1.52251	1.52262	0.00187
6	1.52056	1.52049	1.52064	1.52235	1.52230	1.52239	0.00179
7	1.52064	1.52059	1.52069	1.52243	1.52239	1.52249	0.00179
8	1.52077	1.52068	1.52086	1.52159	1.52153	1.52170	0.00082
A	1.52072	1.52071	1.52072	1.52159	1.52158	1.52160	0.00087
B	1.52071	1.52069	1.52072	1.52169	1.52169	1.52169	0.00098

Figure 3: The average, minimum, and maximum RI values observed for eight control samples (1-8) and two recovered fragments (A-B) in a real case before and for the fragments 5-8 and A-B after annealing (these values are marked with an asterisk).



The measured Δ RI values are consistent with the data in Table 1 and Figure 1, control samples 5-7 were toughened glasses, while sample 8 was a piece of a laminated glass from the vehicle's front windshield. By using annealing, the latter was clearly distinguished from the other samples in our investigation.

IV. Examination of glasses exposed to heat

As a result of heat treatment, the refractive index of glass can change significantly. Under properly controlled conditions, the degree of change can be well reproducible and therefore, it can also be used in forensic investigations. However, in cases where the glass is subjected to a significant thermal shock and the cooling below the deformation temperature is quick, the change in the RI depends greatly on the conditions, and its extent can be significantly different even for glasses from the same source. For this reason, in crimes where the suspect sets fire to the object (e.g. a car or a real estate) after breaking its window, the RI of the recovered glass fragments may differ greatly from the control sample recorded after the fire has been extinguished. Thus, a direct comparison based on the RI may result in false exclusion. Our experiments carried out with toughened, non-toughened and laminated glasses exposed to fire showed that a possible solution to the above-mentioned problem is annealing which means a well-conditioned heat treatment followed by slow cooling to room temperature. Based on the results of a total of 38 experiments with 11 different glass samples, after 4 hours of heat treatment at 650 °C followed by slow cooling, a given glass sample reaches the same refractive index value, regardless of the degree of prior heat exposure, while glasses with originally different refractive indices after controlled heat treatment will also be distinguishable.¹⁴

These results were also verified with additional model experiments. A pane of a toughened and a non-toughened glass was broken, and 2 fragments smaller than 250 micrometers and 2 fragments in the 250-500 micrometers size range were selected, which are in the typical range

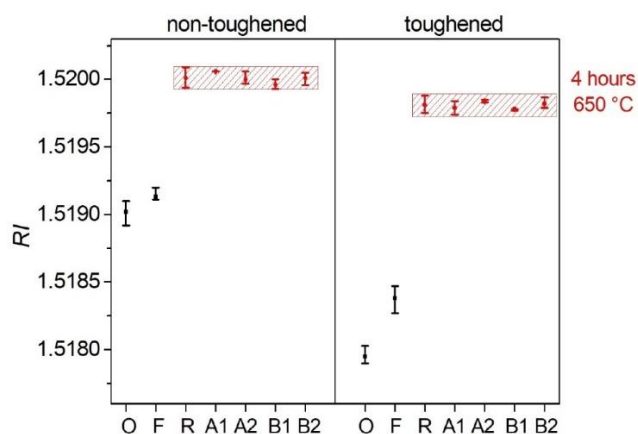
¹⁴ Vörös T., Takács K., Szabó A., Krizsán A., 'Forensic investigation of glass microfragments exposed to heat', *Forensic Science International*, 334 (2022), 111265.

of the fragments that can be found on the suspect's clothing.¹⁵ The remaining part of the broken glass panes were placed in the trunk of a vehicle, which was then set on fire. After 25 minutes of fire, the vehicle was extinguished with water, and reference samples were recorded from the panes. Examining the data in Table 4 and Figure 4, it can be seen that the RI values of both types of glass samples changed to such an extent that the range of the refractive index values measured after the fire and in the initial state were different from each other. It means that the reference sample recorded after the fire and the fragments from the same panes of glass before fire cannot be classified into the same group based on the refractive index. However, after annealing, their RI values match each other within the margin of error, so, by using this method, the relationship of origin can be verified. In Table 4 and Figure 4, it can also be observed that the refractive index of glass samples with originally different refractive index values also differs after heat treatment. The measured average refractive index change in the case of non-toughened glass is 0.00099, while in the case of toughened glass it is 0.00186, which corresponds to the results related to the determination of the glass type.

Table 4: The average (RI_{avg}), minimum (RI_{min}), and maximum (RI_{max}) refractive index values observed for a non-toughened (NT) and a toughened (T) glass in their original state (O) and after 25 minutes of fire treatment (F); furthermore the appropriate values observed for the 2 fragments smaller than 250 micrometers (A1-A2) and 2 fragments in the 250-500 micrometers (B1-B2) and the reference sample (R) after annealing.

Glass type	RI	Original state (O)	After fire (F)	Annealed (4 hours at 650 °C)				
				Ref. (R)	<250 μm		250-500 μm	
					A1	A2	B1	B2
NT	RI_{avg}	1.51902	1.51913	1.52001	1.52006	1.52000	1.51996	1.52001
	RI_{min}	1.51892	1.51911	1.51994	1.52006	1.51997	1.51993	1.51996
	RI_{max}	1.51910	1.51920	1.52009	1.52006	1.52006	1.52000	1.52005
T	RI_{avg}	1.51795	1.51838	1.51981	1.51979	1.51984	1.51978	1.51982
	RI_{min}	1.51790	1.51827	1.51975	1.51974	1.51983	1.51977	1.51979
	RI_{max}	1.51803	1.51847	1.51988	1.51984	1.51985	1.51978	1.51987

Figure 4: The average refractive index values together with the RI ranges observed for a non-toughened (NT) and a toughened (T) glass in their original state (O) and after 25 minutes of fire treatment (F); furthermore the appropriate values observed for the 2 fragments smaller than 250 micrometers (A1-A2) and 2 fragments in the 250-500 micrometers (B1-B2) and the reference sample (R) after annealing.



¹⁵ Vörös T., Takács K., 'Refractive index measurement of the smallest bulk and surface glass microfragments in a model case', *Journal of Forensic Sciences*, 66 (2021), 1948–1955.

V. Summary and conclusions

The forensic examination of glass microfragments in the size range of a few hundred micrometers – similarly to many other forensic institutes – is primarily carried out by refractive index measurement at the Hungarian Institute for Forensic Sciences. The biggest advantage of this method is that it can be used in cases where the measurement of the elemental composition is not possible of the questioned fragments due to their small size. On the other hand, its disadvantage is that it provides only one physical parameter as a result. Given that there are far more glass objects that can be linked to crimes than the number of possible different measurable refractive index values, only a certain degree of probability of origin can be established based on the RI measurement, not a categorical match. In addition, the type of glass – which can be important information in the case of a crime – cannot be determined from the refractive index value. Depending on the production process, different degrees of internal, structural stress are present in the glass, which affects the refractive index. If the investigated fragment is subjected to a well-controlled heat treatment, the stress changes, which is accompanied by a change in the sample's refractive index. The extent of the change that occurs in this way provides additional information about the examined fragment. In accordance with previous results, on the basis of the experiments carried out at HIFS, the change in the refractive index caused by heat treatment falls into clearly distinguishable ranges for container, non-toughened and toughened glasses. Thus, it can be clearly determined whether the glass fragment found at the crime scene comes from a container (e.g. beer or wine bottle), the glass of a property window, or even the windshield of a car door. In addition to type identification, the change in the RI caused by annealing is additional information to the refractive index measured in the original state. It can confirm the assumed origin relationship and can clarify cases where several control samples of different types but with the same refractive index were sent to investigation. The refractive index of glass may change if the control sample is exposed to heat (e.g. fire). In such cases, the RI of the recovered fragments from the suspect's clothing differs from the refractive index of the heat-treated control sample, and their direct comparison results in false exclusion. However, based on the results of our model experiments, by using annealing, it is possible to compare the control sample and the recovered fragments from the same source, even in these cases. In addition to the glass investigating methods used in our Institute, we have successfully applied annealing, thus helping to answer questions related to criminal cases.

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Organised Crime in International Environmental Crime

Csaba Zsigmond¹

In this paper, I will first examine organised crime as a criminological concept and its different theoretical approaches, and then I will analyse the concept of organised criminal group as a concept in international law. I will then examine the structure and functioning of organised crime groups on the basis of my own and various international research. This will be followed by a detailed analysis of international environmental crime. Following the division of the various international organisations (UNODC, INTERPOL), I will describe in detail the different areas: fisheries crime, which essentially involves the significant overfishing of fishing quotas in international waters (overfishing), but also includes unauthorised fishing on the territory of certain countries. Illegal logging, both for the illegal acquisition of farmland and for the sale of illegally harvested timber to the furniture and paper industries. Pollution-related crime, which includes illegal waste trafficking or illegal production by individual farmers, or significant overruns of pollution quotas causing environmental damage. Illegal wildlife trade: the demand-side trade of animal and plant species protected by international conventions across borders or continents. All environmental crimes are characterised by their combination with other serious crimes, such as corruption, violent crime and money laundering.

Keywords: environment crime, organized crime, forestry crime, pollution crime, fisheries crime, wildlife crime

I. Theoretical approaches to organised crime

There is no uniform definition of organised crime, neither in the international² nor in the Hungarian literature.³ From the very beginning, criminologists have used different theoretical approaches and conceptual definitions. It is difficult to define the phenomenon precisely, as organised crime has quickly become an international, cross-border phenomenon, based on different national traditions, with different characteristics, and thus operating in different forms and structures to this day. However, effective and coherent action required a well-defined legal definition applicable to all organised crime groups. While organised crime is a criminological concept, criminal organisation (organised criminal group) is a specific legal concept, which was created by the legislators taking into account the results of various criminological studies on organised crime, by extracting the most characteristic features of organised crime from the many different criminological studies⁴ and by trying to incorporate the features identified into the legal concept. The same difficulty arises in defining the concept of criminal organisation as in the case of organised crime: the diversity of criminal organisations that emerge from different traditions and geographical locations. The diversity of criminal organisations raises the question of how to model the functioning of different types of criminal organisations and how to identify and identify the different types of criminal organisation.

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² Levi, M. – Maguire, M.: Reducing and preventing organised crime: An evidence-based critique. *Crime, Law and Social Change*, (2004) 397–469. DOI: 10.1023/B:CRIS.0000039600.88691.af

³ Tóth M.- Kóhalmi, L. :A szervezett bűnözés. In: Borbíró A. – Gönczöl K. – Kerezsi K. – Lévay M. (szerk.): *Kriminológia*. (2016) Budapest: Wolters Kluwer, ISBN: [9789632956053](https://doi.org/10.1007/978-96-329-5605-3), 603–624.

⁴ Bócz E.: A szervezett bűnözésről és a bünszervezet fogalmáról. *Magyar Rendészet* 4.,(2004), 5–23

In this article, I cannot attempt to describe all definitions of organised crime, as there are close to 150 definitions.⁵ I have only described a few major definitions from the international literature from the 1980s onwards. In the international literature, organised crime is defined in a broader conceptual approach⁶ as crime within an organised framework, where organisations are persistent, hierarchical and carry out multiple criminal activities.

According to another similar conceptual definition⁷, organised crime is characterised by a degree of organisation and structure. The essential elements are continuity and flexibility, and the characteristic of these groups is that they are established over a longer period of time. Furthermore, there is a high degree of rationality behind the activity, with the commission of individual crimes being carefully planned in advance.

There is a theory⁸ that organised crime differs from other group crime in that it occurs in businesses as opposed to rogue criminal groups. It also has a persistent hierarchical structure, regularly uses violence, has corrupt links, has unusually close links with other criminal groups, and penetrates the legal economy. According to this explanation, any form of crime that does not meet these criteria cannot be considered organised crime.

There are theories that illicit business activity is linked to organised crime.⁹¹⁰ According to some views¹¹, the concept of organised crime remains unclear and vague. It is difficult to define what is organised (Italian mafia, Chinese triads) or what else can be considered 'disorganised' (pickpocketing), how many members it must have to be organised to be considered organised, why some activities appear organised (trafficking in human beings) and others not (cyberspace crime). Organised crime groups use violence to maintain their existence and achieve their goals, and are characterised by deviousness. Because it operates outside the law, it uses sham contracts to cover up the trade in illegal goods. It develops its own internal set of rules and patterns of behaviour in illegal businesses, using its own internal set of rules to resolve conflicts.¹²

From the few definitions above, it is clear that common elements that tend to recur in the definition of organised crime are hierarchy, organisation over a long period of time, and in some cases the use of violence, but it is also possible to see that there are very different approaches. The above are not necessarily always characteristic features of organised crime.

II. The specific legal definition of a criminal organisation at international level

When defining a specific, internationally applicable legal concept of criminal organisation, legislators were in a difficult position, given the diversity of criminal organisations. In 1995, the United Nations conducted a questionnaire-based survey of its Member States¹³ in order to develop an effective response to transnational organised crime and to develop international legislation on organised crime (as a precursor to the Palermo Convention). On the basis of the

⁵ Lampe, V. K.: *Organized Crime: Analyzing Illegal Activities, Criminal Structures, and Extra-legal Governance*. New York: John Jay College of Criminal Justice, City University of New York, (2016), 34–35.

⁶ Reuter P.: *Disorganized Crime: Illegal Markets and the Mafia*. Cambridge: MIT Press, (1983) 75–76.

⁷ Passas, N. (1995): *Organised crime*. Dartmouth: Brookfield, (1995) 1–579.

⁸ Naylor, R. T.: *Mafias, Myths and Markets: On the Theory and Practice of Enterprise Crime*. *Transnational Organized Crime*, 3, (1997) 3–6.

⁹ Fijnaut, C. – Paoli, L.: *Organised Crime in Europe, Concepts, Patterns and Control Policies in the European Union and Beyond*. Dordrecht: Springer. (2004) 523. DOI: 10.1007/978-1-4020-2765-9

¹⁰ Spapens, T.: *Macro Networks, Collectives, and Business Processes: An Integrated Approach to organized Crime*. *European Journal of Crime Criminal Law and Criminal Justice*, 2, 185–215. DOI: 0.1163/157181710X12659830399653

¹¹ Siegel, D.: *Diamonds and organised crime: The case of Antwerp*. In: Siegel, D. – Nelen, H. (szerk.): *Organised crime. Culture, markets and policies*. New York: Springer. (2008) DOI:10.1007/978-0-387-74733-0

¹² Ibid.

¹³ United Nations Office on Drugs and Crime: *Results of a pilot survey of forty selected organized criminal groups in sixteen countries*. (2002) Vienna, 4.

questionnaires completed, it found that the following eighteen categories of crime were present in organised crime: money laundering, terrorism, theft of works of art and cultural property, theft and usurpation of intellectual property, illicit arms trafficking, aircraft hijacking, maritime piracy, insurance fraud, computer crime, environmental crime, trafficking in human beings, trafficking in human body parts, drug trafficking, financial fraud, infiltration of the legal economy, corruption and bribery of public officials.

A few years later, in the interests of a unified international response, the so-called Palermo Convention, adopted in 2000, created the concept of organised criminal group.

Organized criminal group: shall mean a structured group of three or more persons, existing for a period of time and acting in concert with the aim of committing one or more serious crimes or offences established in accordance with this Convention, in order to obtain, directly or indirectly, a financial or other material benefit.

III. Modelling and typology of criminal organisations based on extensive international research

In 2002, the United Nations carried out an unprecedented international survey¹⁴ to assess known or known to the authorities transnational criminal organisations according to their activities, activities and structures, and to classify them into types. Such a wide-ranging, comprehensive international survey has never been undertaken before or since. The research was based on the assumption that types of criminal organisations can be identified by taking certain variables into account. The report on the research explains that the typology of criminal organisations is important because it can help to understand the context of transnational organised crime and to help law enforcement agencies to act effectively.

The research method was a questionnaire sent to 16 different countries, which are listed below: Australia, Canada, Colombia, Czech Republic, Germany, Italy, Japan, Netherlands, United Kingdom, United States of America, South Africa, Russia, United Kingdom.

The research was carried out on 40 criminal organisations. The questionnaire was completed by law enforcement officials, police investigators, prosecutors, judges and criminologists and researchers from universities in the respective countries¹⁵. Respondents were asked to select several organised crime groups they were familiar with and complete the questionnaire for each of these groups. One of the basic questions of the research was what can be considered a criminal organisation. This was based on the concept of organised criminal groups as set out in the Palermo Convention. Based on the responses received, categories of organised criminal groups were developed. The following five categories were identified.¹⁶

A Criminal organisation with a fixed hierarchy (standard hierarchy):

Characterised by one-person leadership, clearly defined hierarchy, strong internal discipline, strict internal rules, the organisation is known by a name (e.g. cosa nostra), strong social or ethnic ties among members are common, violence is a fundamental feature of activity, and the organisation often has complete influence and control over a defined geographical area.

B Criminal organisation with a regional hierarchy:

Characterised by one-person leadership, command system from headquarters, but some autonomy at regional level, geographical/regional division, multiple activities, often strong social or ethnic links between members, violence is a fundamental feature of activity.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid.

C Criminal organizations with a "clustered hierarchy":

It encompasses a certain number of criminal groups, which are centrally managed and coordinated by a smaller group, there is a stronger ethnic or social identity among the members of the smaller groups, they have a certain degree of autonomy, and smaller groups, this type occurs relatively rarely.

D Criminal organizations with a "core-like hierarchy" (core group):

The core is surrounded by a loose network, the number of members is relatively constant, a vertical structure is typical, the maintenance of internal discipline is less typical, the social or ethnic background of the members is rarely the same, it is less typical that the criminal organization bears a name.

E "Criminal network":

The main activity of each member is definable, skills and networks of contacts determine who stands out from the rest, personal loyalty and established relationships are more important than social or ethnic identity, network contacts are clustered around a major criminal activity, typically no name for the group, the network reforms itself if a key individual drops out. Independently of the UN research discussed above, a number of theories and typologies have emerged regarding the grouping of organised criminal groups. The findings of these studies do not contradict the UN research, but there is some overlap between the different types.

IV. Organised crime in environmental crime

A Environmental crime in general

The definition of environmental crime is based on the practice followed by Interpol in writing this article. Interpol itself has not created an exact definition of environmental crime, but has only created four main categories of environmental crime:

- Fishing offences,
- Forestry crimes,
- Environmental crimes,
- Wildlife crime

B Group and organised forms of environmental crime

A 2021 study¹⁷ has extensively modelled the structure within which certain criminal groups may commit wildlife crime, which is a narrower group within environmental crime. Three types were distinguished:

(i) Organised criminal groups

Typically hierarchical, highly organised, less opportunistic, committing crimes other than environmental crime (drug trafficking, etc.) and with strong corrupt links to the authorities.

(ii) Corporate criminal group

This group of criminals commits crimes hiding behind a typically registered business company. It is highly organised, with the company providing the framework, less opportunistic offending, no other types of crime, and occasional corrupt links.

¹⁷ Wyatt, T., van Uhm, D., & Nurse, A.: Differentiating criminal networks in the illegal wildlife trade: Organized, corporate and disorganized crime. *Trends in Organized Crime*. (2020) 350–366. <https://doi.org/10.1007/s12117-020-09385-9>

(iii) *Disorganised networks*

Typically less organised, loosely structured, with no rigid hierarchy, a high degree of opportunism, frequent links with other crimes and corruption. This type of group offending does not always reach the level of organised criminal groups as defined in the Palermo Convention.

Of course, these three types rarely occur in a pure form, typically with a mixture of characteristics: either a hierarchically organised criminal group committing crimes under the guise of a front company or a shell company, or the distribution of crimes between different entities in the course of cross-border illegal smuggling (wildlife crime, forestry crime, pollution crime).

V. Organised crime groups involved in some forms of environmental crime

A *Fisheries crime*

A fishing crime is defined by the FAO (Food and Agricultural Organization) as: that conducted 'by national or foreign vessels in waters under the jurisdiction of a state, without the permission of that state, or in contravention of its laws and regulations'.¹⁸

Our oceans are a key source of food and employment for millions of people worldwide, but fish stocks are depleting, making fish a valuable commodity. Organised, international criminal groups are increasingly turning to illegal fishing, threatening food security and the economic, social and political stability of coastal countries.¹⁹

Illegal activities do not stop at fishing - criminals use fishing boats for drug and human trafficking, as nomadic shipping habits and long periods at sea make it easy for these vessels to blend into the maritime background without being suspected. Criminal networks also use the proceeds from large-scale fishing to finance other illegal activities.²⁰

According to the UNODC, not only the crimes listed above can be linked to fisheries crime, but also various economic crimes: tax fraud, forgery, money laundering, corruption.²¹

All three of the above-mentioned organised offences may be behind this crime. The typical form of the offence is when a well-organised, hierarchical mafia-type criminal organisation sets up a front company and then carries out illegal fishing. In this case the categories of organised criminal group and corporate criminal group are mixed. But it may also be typical for a less organised, loosely connected, unorganised network to commit a few illegal fishing operations. Often, organised criminal groups exploit people fleeing poor countries to work as slave labour on board fishing vessels²².

B *Forestry crime*

These include crimes in which the perpetrators carry out logging activities illegally without permits. This crime is also extremely dangerous for humanity, as the criminals responsible for illegal logging and illegal timber trade not only destroy biological diversity, but also threaten the livelihood of people who depend on forest resources. Criminal land clearing, for example,

¹⁸ Boopendranath, M. R. "FAO Code of conduct for responsible fisheries-Fishing Operations." ICAR: Central Institute of Fisheries Technology, (2019) 41–53.

¹⁹ Interpol: Fisheries Crime <https://www.interpol.int/Crimes/Environmental-crime/Fisheries-crime> (20 September 2023).

²⁰ Ibid.

²¹ UNODC: Approach to crimes in the fisheries sector https://www.unodc.org/res/piracy/index_html/UNODC_Approach_to_Crimes_in_the_Fisheries_Sector.pdf (20 September 2023).

²² Bueger, Christian, and Timothy Edmunds. "Blue crime: Conceptualising transnational organised crime at sea." *Marine Policy* 119 (2020): 104067.

can cause landslides and deprive forest-dependent communities of access to food, medicine and fuel.²³

The goal of forestry crimes – like all environmental crimes – is to make a huge profit by selling illegally harvested timber. These wood materials are used to make furniture or paper. Of course, organized criminal groups have also appeared in this area, and with the help of well-established channels of corruption, they cut down forests, harvest wood and sell timber illegally.²⁴

In the case of forestry crime, all three forms of group perpetration can occur: criminal organizations with a strict hierarchy can carry out this illegal activity hiding behind a legally established company, but a loosely organized supply chain can also be behind this activity.

C Pollution crime

In the absence of an internationally agreed legal definition of pollution crime, INTERPOL considers "pollution crime" to be an umbrella term that describes a whole range of offences. It includes the trafficking and/or illegal handling of potentially polluting substances and which results in pollution. Non-exhaustive types of crime include: waste crime; marine pollution; pollution-related crime; fuel, oil and gas smuggling and illegal refineries; illegal use and trafficking of chemicals and chemical substances; and plastics; and carbon-related crime.²⁵

As with any other type of environmental crime, pollution-related crime is primarily driven by a high-reward, low-risk business model, where criminals exploit regional disparities such as labour costs, weak environmental legislation and law enforcement capacity. These global inequalities create criminal opportunities to illegally transport hazardous materials between countries and/or illegally dispose of them on land, in rivers or at sea to reduce costs or make a profit.²⁶

In many cases, organised crime is involved in pollution-related crime, which is mixed with other types of crime such as theft, human trafficking, fraud, drug and firearms trafficking and money laundering.²⁷

Interpol 2022 detailed analysis shows that this type of crime involves both highly centralised, hierarchical mafia organisations and loose networks.

Hierarchical mafia-type criminal organisations are primarily involved in the illegal waste trade, often taking hazardous waste from producers for large sums of money and illegally transporting it to other countries. The original polluter can still save a considerable amount of money instead of the costly waste treatment process. It should be noted that even in this crime, criminal organisations based on a strict hierarchy often hide behind front companies or shell companies.²⁸

Another typical organised criminal structure is that of loose, flexible networks. This consists of networks of brokers and intermediaries, companies or criminal groups, each covering a particular stage of the crime. Suspects use their sector expertise to make a profit, and then move the business into the hands of the next interested party, who continues with the next stage of the crime. These networks are characterised by opportunistic offending.²⁹

²³ Interpol: Forestry crime <https://www.interpol.int/Crimes/Environmental-crime/Forestry-crime> (20 September 2023).

²⁴ van Solinge, T. Boekhout, et al. "Organized forest crime: a criminological analysis with suggestions from timber forensics." *IUFRO World Series* 35 (2016): 81-96.

²⁵ Interpol: Strategic report, The Nexus between Organized Crime and Pollution Crime (June 2022) file:///C:/Users/user/Downloads/INTERPOL%20Report%20OC-PC_Final-1.pdf (20 September 2023).

²⁶ Ibid.

²⁷ Ibid.

²⁸ Ibid

²⁹ Ibid

D Wildlife crime

According to the UNODC, wildlife crime covers all activities related to any animal and plant species protected under international or national legislation, including their poaching, trade, possession, transport, smuggling and sale.³⁰

Wildlife crime is quite a profitable business, so of course organized crime is also involved in this activity.

Animals and plants protected by various international treaties or national legislation are sought for a wide variety of purposes around the world:

hobby animals, food purposes, making ornaments, clothing products can be made from the fur of certain animals, for medicinal or food purposes.³¹

As mentioned above, this activity can also be carried out by mafia-type organizations built on the basis of a strict hierarchy, often maintaining smuggling networks that cross continents and national borders. In these cases, other illegal goods (e.g. drugs) are often smuggled as well. At the same time, legally registered companies can be observed, which, in addition to some legal activity, also deal with this. Finally, you can also find different loosely structured, flexible networks here: some members of flexible smuggling networks spanning continents often do not or hardly know each other.

VI. Conclusions

The results of international research and the reports of international organizations point out that international organized criminal groups were created in the most different forms, with a structure, number of employees, period of operation, and form of activity. The article shows that these organizations are present in all forms of environmental crime.

Organized criminal groups dealing with environmental crime can range from rigid criminal organizations with a well-known "mafia" structure to transcontinental networks with a loose, flexible structure, but "corporate crime" within the framework of legally registered business associations can also be observed.

Environmental crimes in themselves are extremely dangerous to humanity, as they cause serious environmental damage, cause the destruction of the human environment, and increase one of the biggest global problems of today, global climate change.

The listed environmental crimes are often closely related to other serious crimes: corruption, drug trafficking, human trafficking, human smuggling, money laundering.

The purpose of this article was to point out that organized crime is present in the commission of environmental crimes. It also points out how organized crime can take many forms in this area. All of this draws the attention of law enforcers acting in such cases to the fact that environmental crimes must be treated as a matter of priority, and that action against these criminal organizations is a complicated and multifaceted task.

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³⁰ UNODC: *Wildlife and Forest Crime*. <https://www.unodc.org/roseap/en/what-we-do/toc/wildlife-overview.html> (20 September 2023).

³¹ Ibid

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