NATIONAL UNIVERSITY OF PUBLIC SERVICE

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Development in Electronic Governance in Hungary Based on the Experiences of the Electronic Public Administration Operational Programme and the State Reform Operational Programme

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Propositions of the doctoral thesis (PhD)

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PRESENTATION OF THE SCIENTIFIC PROBLEM

My interest in this research subject is based on my previous research, conducted at the research company ICEG European Center, and on my experience gained from the Managing Authority of Public Administration Reform Programmes of the National Development Agency (subsequently the Managing Authority of Public Administration Programmes at the Prime Minister's Office). Already as a student majoring in public administration and then in the affairs of the European Union, I was interested in development in the public sector, and more specifically, in public administration, the innovative processes taking place in this field, and the issue of efficiency. Subsequently, I participated in international research projects related to information and communication technologies, e-services and the knowledge-based economy, with primary focus on the improvement of information and communication technology (ICT) in public administration and in the public sector, and on e-services (eGovernment, eHealth, eLearning and eBusiness). At the National Development Agency, the supporting organisations provided me with the opportunity to relate to projects started and implemented in the framework of the Electronic Public Administration Operational Programme (EPAOP) and the State Reform Operative Programme (SROP) in the period between 2007 and 2013, thus I could learn the elements linked to the success of these projects through personal experience.

Based on the achievements of my previous research I was aware of the fact that the indices on the level of development in electronic government rated Hungary among less developed countries, and based on the amounts of money spent on electronic government in the framework of the EPAOP and SROP, and then in the new programming period, also under the Public Administration Development Operational Programme (PADOP), I expected that the 2016, 2017 (and subsequent) rankings would already reflect the outcomes of these improvements. The literature presents that "the more IT-conscious a person is and the more a country spends on information technology - from the government to companies -, the more competitive, progressive and, not least, the richer it is or it becomes (AGG, FELBER, KOVÁCS, MOLNÁR and TÓZSA 2013).

In this research I sought an explanation to the **conundrum** why the investments in ICT development in public administration do not appear spectacularly (showing an upward trend) in the scores of the indicators measuring the level of development in electronic government in Hungary. In relation to this, however, I considered it important to disclose the extent to which

the system of correlations matches the European Union's objectives behind the Operational Programmes (OP) and the projects implemented on the basis of the OP's (indicators and the impacts of improvements), in other words, to what extent is the "alignment" known from the literature can be present in this procedure. Below I analyse alignment as a potential project success factor.

Although the various public sector organisations have numerous similarities with other organisations, public administration has a few peculiar characteristics that influence ICT use (JANSEN, 2012). The widespread use of information and communication technologies in the public sector is manifest in the development of electronic government, which has an important role in the provision of higher-standard public services to citizens and business organizations.

ICT investments generate value in the public sector, but instead of the traditional appearance, it is manifest e.g. in better governance, democratic transparency, welfare improvements or in better public services and satisfied citizens in the countries (LIPS 2012; HALACHMI, GREILING 2013, and NEMESLAKI 2013).

In the course of my research I considered it important to disclose Hungary's performance relative to other countries in the international indices investigating the level of electronic government, achieved as a result of the improvements made in the electronic public administration; the basis of determining the scores assigned to the individual indicators, the correlation between competitiveness and the development of electronic government, and whether it is indeed a competitiveness factor.

A country's national competitiveness is determined by numerous factors, including: the quality of governance, the macro-economic environment, the viability of business clusters and the strategic efficiency and performance of the companies (Vu M. K., West M. D., 2005). Of these factors, I analyse the government as a factor of competitiveness, and the development of electronic government as a factor to influence competitiveness.

The eGovernment endeavours to use technology as a strategic implement in improving the national competitiveness of countries, the macro-economic environment, the government, the local cluster performance and corporate conduct, which may differ in various countries (HEEKS, 2001).

Nemeslaki (2015) thinks that a better compiled SAM may contribute more successfully to the performance of the electronic government.

No mention is made in the literature of the role alignment may have, inter alia, in the electronic government projects (and thus in the development of electronic government),

although alignment is discussed in numerous areas: in addition to the business sector, recently an increasing number of case studies in this field has also been made in the public administration. In "Alignment 2.0", Albert Meijer and Marcel Thaens study the presence of new technologies in governance. The application of the "old" strategic business alignment approach in the event of the Web 2.0 technologies shows that this old method is still useful. Strategic alignment is now easier than it was, and may really be a basis for government Web 2.0 strategies (MEIER, THAENS, 2010).

Till J. Winkler (2013) presents a theoretical model for studying the correlation between IT government mechanisms and the corresponding performance outputs expressly in public sector organisations.

In the field of electronic government projects, I used a specially developed methodology to study strategic alignment, the alignment of SROP and EPAOP projects with the objectives of the operational programmes, and alignment between the SROP and EPAOP projects.

RESEARCH GOALS, QUESTIONS ASKED, HYPOTHESES AND THE APPLIED RESEARCH METHODS

Figure 1 depicts the objectives of my thesis and the chain of correlations between the individual areas studied, which also provide the basis of describing the conundrum described in the introductory part and the discussion of its individual elements. The following framework contains the alignment of the ICT projects (funded under EPAOP and SROP) implemented in the economy as a result of the identification of project success factors, along the chain EU objectives – Operational Programmes – Projects – Indicators, of which I analysed the EU objectives, the Operational Programmes and the Projects. Indicators are not presented in detail in this study, they are only mentioned during the description of the lessons learnt from the interviews. I have specified the impacts of electronic government projects with the help of EGDI, DESI, Capgemini (and GCI) indicators, and validated the models by interviews I made with specialists.

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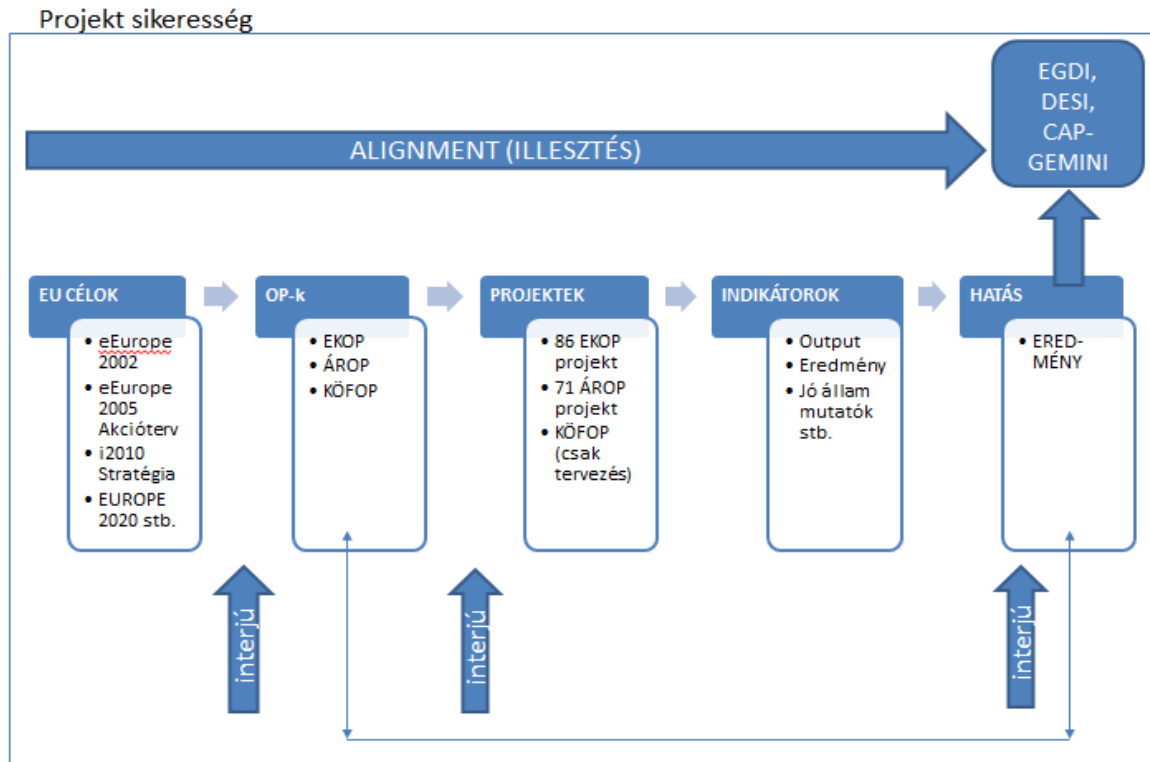
Source: Edited by the author

In this study I considered it important to disclose the trends in Hungary's performance and competitiveness relative to other countries in the international indices investigating the level of electronic government. Which are the success factors that characterise the implementation of the EPAOP and SROP projects in the alignment framework I have used?

I have identified and conducted my empirical studies in relation the following **project success factors:**

- alignment of Hungarian strategic documents with the objectives of the European Union;
- alignment of electronic public administration / electronic government projects with the EPAOP and SROP objectives;
- alignment between the EPAOP and SROP projects;
- effect of changes in governance on electronic public administration / electronic government projects.
- success criteria identifiable on the basis of the experiences of the stakeholders in the institutional system.

Hypotheses (H) and applied research methods (RM):

Hypothesis related to the development of electronic government and to competitiveness:

- **H1:** Correlation may be demonstrated between the scores in the indicator of the development of a country's electronic government and the scores of the competitiveness indicator. In other words, the countries spearheading development in electronic government based on the scores assigned to them in the indices of development are also at the forefront in terms of competitiveness index scores. In the indices measuring the development of electronic government, and in the rankings compiled on this basis, no significant change can be seen for Hungary.

- **KM1:** Comparison of the indices of development in the electronic government and the competitiveness index. I analysed the sub-indicators of the indices, and drew conclusions on the areas that need to be studied as elements that may fall short of the expectations in Hungary's case. Methods applied: statistical analysis, correlation calculation, and a comparative analysis.

Hypotheses related to project success factors:

- **H2:** The Hungarian strategic documents reflect the European Union's objectives related to electronic government, i.e. strategic alignment is implemented. The projects

launched in the framework of EPAOP and SROP match the objectives set out for EPAOP and SROP; and the EPAOP and SROP are in alignment with each other.

- **KM2:** The applied methods included the analysis of development and strategic documents, the compilation of a database, the application of text mining and cluster analysis.

- **H3:** The changes that take place in the government affect project goals, the scope of beneficiaries and project size. Government cycles affect electronic public administration projects and their progress.

- **KM3:** The applied research methods included using the database compiled for the above-specified hypothesis and cluster analysis.

- **H4:** In the case of the analysed EPAOP and SROP projects, the main factors of project success correspond to the key factors listed in the relevant literature, such as: scope, term, cost, quality, and the satisfaction of parties affected by the projects.

- **KM4:** The applied research methods included interviews made with specialists by way of questionnaires, aimed at the identification of the most important success criteria on the basis of the opinions of beneficiaries and of the supporting organisations.

BRIEF DESCRIPTION OF THE CONDUCTED TESTS

Within the framework of electronic governments, my research objective was to analyse the alignment of the ICT projects implemented in public administration through a study of the projects implemented under the EPAOP and SROP programmes, along the chain EU objectives – Operational Programmes - Projects – Indicators - Impact, and to validate this framework by interviews made with specialists.

In this study I disclosed the trends in Hungary's performance and competitiveness relative to other countries in the international indices investigating the level of electronic government. Which are the success factors that characterise the implementation of the EPAOP and SROP projects in the alignment framework I have used?

In **Chapter 2** of the thesis, I overview the relevant literature.

I present various definitions for the term "electronic government" without an attempt at being comprehensive, as it is nearly impossible to give account all the existing definitions based on research. In this study I used the definition given by Csáki.

In this thesis I overview the European Union's most important documents regarding electronic government, the strategic documents drafted in Hungary, and other relevant documents, as described in detail in Chapter 2.

In addition to the theory of electronic government, among the theoretical foundations I also tackle the theory of project success, as in addition to a theoretical approach, I have also analysed the electronic public administration projects implemented in the framework of EPAOP and SROP and established their project success in order to size up the level of development in electronic government.

For this reason, the most detailed topic I tackle among the theoretical foundations concerns "alignment".

In **Chapter 3** of the thesis I present the correlation between competitiveness and development in electronic government, and the level of development in Hungary's electronic government. Of the indices measuring development in electronic government in the individual countries, I give a more detailed analysis of the e-Government Development Index (eGDI), the Digital Economy and Society Index (DESI), and their components, and also present the benchmarks established by Capgemini. I describe competitiveness with the help of the Global Competitiveness Index, GCI. The correlation between development in electronic government and competitiveness is illustrated with the help of the eGDI, DESI and GCI indices.

I have calculated correlation between the various components of the index to demonstrate their interrelationship.

I have concluded that the scores assigned to Hungary in the index for the development of its electronic government and its ranking among the Member States of the European Union in terms of the development of electronic government fail to reflect the efficient use of the funds used for the improvement of this area. Hungary drops behind the flagship countries of the EU in terms of development in electronic government.

In **Chapter 4** of the thesis, the effects of "alignment" on the success of electronic government projects are analysed.

I investigate alignment in 3 key areas. First, I analyse the appearance of the strategies set up by the EU in the practice of electronic government in Hungary. Second, I analyse alignment with the objectives of EPAOP and SROP for the projects launched in the framework of EPAOP and SROP. Third, I studied the alignment between EPAOP and SROP projects.

As a result of the alignment analysis, I conclude that strategy is not in focus in Hungary, and neither alignment patterns nor management techniques are applied in the public sector in Hungary. In the 2007-2013 programming period, no integrated guidance was determined at the top level.

Alignment may need to be applied because it ensures consistency between strategy (the strategic documents) and the objectives.

Based on the text mining method I used and on the cluster analysis, I concluded that the keyword statistics are generally consistent with the main policy objectives of the Operational Programmes, although some areas are not given appropriate emphasis among the project goals, such as: the active involvement of social partners, the role of local governments, and user skills improvement through informational campaigns.

As a result of an analysis of the interrelationship between the EPAOP and SROP projects, it can be established that in the case of some of the EPAOP and SROP projects, the structures of implicit objectives are similar and support the original political intention to finance the modernisation of services and technology under EPAOP, and the upgrading of organisational and human resources under SROP.

In **Chapter 5** I studied the effects of government cycles on eGovernment investments. The effects of political cycles can be clearly illustrated in the period of the 2010 change of government, as there is a passive period in the conclusion of contracts for two operational programmes in the period between 2010 and 2011. The change in political cycles also

triggered more profound changes in project planning, objectives, project sizes and terms, and this meant a considerable loss of time in terms of the progress made in the projects, and it was also pivotal for the fulfilment of the absorption goals.

In **Chapter 6** of the thesis, I sum up the experiences obtained from the interviews made with specialists in light of project success. I made interviews with specialist stakeholders of cohesion policy institutions, and in addition to the supporting organisations, I also asked beneficiaries and the implementing agents about their experiences related to the projects. In addition to the factors specified in the relevant theories, I also identified other success factors. Based on the interviews, I found numerous factors not discussed in the sources included in the literature. Interesting aggregate results were also obtained in the field of value creation. In the case of EPAOP, cheaper, more efficient and faster service, reduction in the time required for administration and in lead time, cutting labour costs, improvement in customer satisfaction, reduction in administration and easier access resulting from electronic administration all appeared as values created. As for the SROP projects, they included social usefulness, training, improving awareness and alternative educational methods.

CONCLUSIONS AND NEW SCIENTIFIC ACHIEVEMENTS

Proposition related to the development of electronic government and to competitiveness:

H1: Correlation may be demonstrated between the scores in the indicator of the development of a country's electronic government and the scores of the competitiveness indicator. In other words, the countries spearheading development in electronic government based on the scores assigned to them in the indices of development are also at the forefront in terms of competitiveness index scores. In the indices measuring the development of electronic government, and in the rankings compiled on this basis, no significant change can be seen for Hungary.

Based on an overview of the literature and the conclusions drawn in Chapter 3:

T1: A positive correlation may be demonstrated between the scores in the indicator of the development of a country's electronic government and the scores of the competitiveness indicator. In other words, with a few exceptions, the countries spearheading development in electronic government based on the basis of the scores assigned to them in the indices of development are also at the forefront in competitiveness index scores. In the indices measuring the development of electronic government, and in the rankings compiled on this basis, no significant change can be seen for Hungary, despite the fact that large amounts are invested in the improvement of electronic public administration, as development objectives are not determined in relation to the index components, and thus Hungary is making progress in areas other than these.

I analysed the correlation between development in electronic government and competitiveness using the eGDI, DESI and GCI indices. Each of these three indicators are complex. The detailed analysis of their components is described in Chapter 3 of the thesis. These three indicators clearly describe the level of a country's electronic government and competitiveness.

In order to analyse the correlation between development in electronic government and competitiveness, I performed calculations. Based on the eGovernment Development Index

(EGDI) and the Global Competitiveness Index (GCI), in the 28 Member States of the EU, the correlation is 0.7962, close.

I also calculated correlation between the Digital Economy and Society Index (DESI) and GCI, which yielded 0.8665, a close correlation.

Based on the correlation calculation, with a few exceptions, the Member States of the EU that have a highly developed electronic government system (based on their respective EGDI and DESI values) are also in the forefront of competitiveness (based on their GCI values). This may be explained by the fact that the EGDI and the DESI indices include factors that have a key significance in competitiveness if they are high, representing development.

Based on these analyses, Hungary's development in electronic government, as reflected in the indices, and its ranking among the Member States of the European Union fail to reflect the efficient use of the funds used for the improvement of this area. Based on the components of the analysed indices, the reason for this is that the objectives are not set relative to the components comprised in the indices, and thus Hungary is making progress in areas other than these components.

Overall it can be established that Hungary drops behind the developed countries of the EU in terms of development in electronic government. In the 2016 eGDI and DESI rankings, Hungary is placed 23rd and 20th, respectively, and the Capgemini benchmark report also shows a significant backlog in the 2016 data, as the country ranks in the underperforming sector in terms of both digitalization and penetration.

Propositions related to project success factors:

H2: The Hungarian strategic documents reflect the European Union's objectives related to electronic government, i.e. strategic alignment is implemented. The projects launched in the framework of EPAOP and SROP match the objectives set out for EPAOP and SROP; and the EPAOP and SROP are in alignment with each other.

Based on the literature overview and the conclusions drawn in Chapter 4:

T2: The Hungarian strategic documents reflect the European Union's objectives related to electronic government. The projects launched in the framework of EPAOP and SROP are in alignment with the objectives set for EPAOP and SROP, although some

areas are not given appropriate emphasis among the project goals, such as: the active involvement of social partners, the role of local governments, and user skills improvement through informational campaigns. An analysis of alignment between the EPAOP and SROP projects reveals that in the case of certain EPAOP and SROP projects the structures of implicit objectives are similar and they support the original political intent to finance the modernisation of services and technology under EPAOP, and the upgrading of organisational and human resources under SROP.

Based on the statements made in Chapter 4.1 above, the Hungarian strategic documents do reflect the European Union's objectives related to electronic government.

The objectives set out in the Operational Programmes of Hungarian development plans are in alignment with the European Union's regional policy, however, despite alignment in the objectives, based on the conclusions drawn from the evaluations of the impacts of EPAOP and SROP, there are numerous deficiencies.

Based on the text mining method I used and in relation to these two Operational Programmes, the conclusion can be drawn that the keyword statistics are generally consistent with the main policy objectives of the Operational Programmes, although some areas are not given appropriate emphasis among the project goals, such as: the active involvement of social partners, the role of local governments, and user skills improvement through informational campaigns.

As a result of an analysis of the interrelationship between the EPAOP and SROP projects is that in the case of some of the EPAOP and SROP projects, the structures of implicit objectives are similar and support the original political intention to finance the modernisation of services and technology under EPAOP, and the upgrading of organisational and human resources under SROP.

H3: The changes that take place in the government affect project goals, the scope of beneficiaries and project size. Government cycles affect electronic public administration projects and their progress.

Based on the literature overview and the conclusions drawn in Chapter 5:

T3: Government cycles have a significant impact on the period of project implementation, on project size (contractual amount), the scope of beneficiaries, delay in project implementation, and consequently on the professional content.

Based on the database used in this thesis, the objectives, beneficiaries, budget and project terms were analysed in relation to government cycles. As an important conclusion, government visions may affect the key project objectives and other characteristics.

The number of projects analysed was 25, 17 and 91 during the Gyurcsány Government, the Bajnai Government and the Orbán Government, respectively.

The analysis described in the thesis clearly reveals that the professional content of the projects does/may also change in the various government cycles. This is confirmed, inter alia, by the fact that in the period between 2007 and 2008 (under PM Gyurcsány) and between 2009 and 2010 (when PM Bajnai was incumbent), the improvement of and IT support to the judicial system were in focus, while the related keywords disappeared from the projects run in the Orbán Government's period. While the keyword "strategic" approach was frequent in the case of projects running during the term of the Gyurcsány Government, the frequent, and previously missing, keywords ("integrated," "opportunity," "creation" and "implementation") used during the Orbán Government suggest a different approach to investments.

Changes in government cycles had a profound impact on the beneficiaries, as my research reveals that in the period between 2008 and 2010, the main beneficiary was the Ministry of Public Administration and Justice, followed during the Gyurcsány Government, by the Governmental Information Technology Development Agency, while during the Bajnai Government, the key beneficiaries included the Central Office for Public Administration and Public Services and the Ministry of Human Resources. During the term of the Orbán Government, the Nemzeti Infokommunikációs Szolgáltató Zrt. (NISZ) and the National University of Public Service were also included among the key beneficiaries, the former under the EPAOP, and the latter under the SROP. In addition, the Ministry of the Interior was also included next to the previously appeared key beneficiaries.

Differences between the various government cycles can also be demonstrated in the contractual amount. In the first and third government cycles the average amount contracted for a project was relatively high (EUR 5.25 million and EUR 4.21 million, respectively), while during the term of the Bajnai Government, the average contractual amount was relatively lower (EUR 2.67 million), i.e. smaller-size projects were given preference in funding under the two Operational Programmes.

The project implementation period also changed over the period of analysis depending on the incumbent government. The planned project implementation period was more than two years for projects running during the Gyurcsány Government (the characteristic implementation period was 30 months on average), while in the next two government cycles the project period

decreased considerably (to 22 and 20 months, respectively). This shorter period may result from an absorption pressure in the case of projects that started at the end of the programming period.

Thus changes in the political cycles also triggered more profound changes in project planning, objectives, project sizes and terms, and this meant a considerable loss of time in terms of the progress made in the projects, and it was also pivotal.

H4: In the case of the analysed EPAOP and SROP projects, the main factors of project success correspond to the key factors listed in the relevant literature, such as: scope, term, cost, quality, and the satisfaction of parties affected by the projects.

Based on an overview of the literature and the conclusions drawn in Chapter 6:

T4: In the case of the analysed EPAOP and SROP projects, the main factors of project success do not completely coincide with the overall key factors listed in the relevant literature, such as: scope, term, cost, quality, and the satisfaction of parties affected by the projects. Based on the research, in Hungary the projects implemented in the framework of the EPAOP and SROP may be divided into external and internal factors. External factors are factors more difficult to influence by stakeholders, such as strategic grounding (when there is no strategy, EPAOP and SROP were planned in the absence of a strategy); permanent strategic and policy objectives, government / political support and a political background, a permanent organisational background during project implementation; harmony between political and professional objectives, and a stable legislative environment. The success factors specified in the literature, such as the scope, period, cost, quality and stakeholder satisfaction can be complemented by additional internal factors. Based on the interviews made, these considerations include: appropriate planning, the feasibility of financing and liquidity; high quality, professional and project management skills, in the case of human capacities; leadership commitment and skills, commitment by the implementing parties; appropriate risk management; the application of incentives, and the effective satisfaction of business demand.

These conclusions have been worded on the basis of the lessons learnt from the interviews. The conclusions drawn from the interviews relate to value creation in the framework of the EPAOP projects. In the case of EPAOP, cheaper, more efficient and faster service, reduction

in the time required for administration and in lead time, cutting labour costs, improvement in customer satisfaction, reduction in administration and easier access resulting from electronic administration all appeared as values created. As for the SROP projects, they included social usefulness, training, improving awareness and alternative educational methods.

Taking Hungary's characteristics into account, the interviews made with the specialists reveal that in the case of the electronic public administrative projects implemented as Operational Programmes, *planning, project management competences and the expertise of the implementing parties* had the greatest impact on the success of project implementation.

One of the development achievements that deserves mentioning is that thanks to the EPAOP projects, competences and powers have become clearer as a result of using central databases, and this in turn has made public administration procedures more transparent and faster. Due to electronic public administration investments, the amount of administration and the time required for the procedures have decreased, the infrastructure has been modernised, new electronic services have been created to reduce the need of personal presence, and customers can manage their cases conveniently, from home. Access to administration has improved through the single digital gateway, and digital government offices were set up.

As a result of SROP projects, procedures simplified, the employed staff is better prepared, training courses have become more flexible (e.g.: eLearning and blended learning have spread), and legislative amendments have been made. As a result of competence improvements, the skills and competences of civil servants have improved, and the performance of their daily work was facilitated and they are more successful in the fulfilment of their tasks (administrators at government offices and at ministries). They could participate in communication training courses and learn time planning, time management, conflict management, cooperative skills improvement etc.

The success factors are described in detail in Chapter 6 of the thesis.

RECOMMENDATIONS AND PRACTICAL USE

Recommendations for the practical use of the recent scientific achievements

In terms of practical use, this thesis provides the opportunity for the following:

- determining new practical achievements and solutions that facilitate resource management and project implementation;
- laying the professional basis for development documents related to the European Union's electronic public administration projects;
- with its database and established research methods, for a deeper-going qualitative and quantitative analysis of developments in electronic public administration;
- it is useful as a professional and methodological material and a teaching aid in training professional in this field;
- as a comprehensive and critical overview of this field for people interested in projects to improve electronic public administration.

CURRICULUM VITAE

Field of research: development in electronic public administration and improving the efficiency of electronic public administration services.

I graduated in business management from the University of Miskolc in 2002, with a degree in economics. Then up to 2008 she taught micro-economy, macro-economy, European integration and comparative economics at the Department of Business Management of the College of Nyíregyháza. She began her doctoral studies in 2004 at the "Theory and Practice of Business" Doctoral School of the University of Miskolc, where she passed the graduation exam in 2007. In September 2013 she was admitted to the doctoral school of the National University of Public Service, where she requested conduct of the graduation procedure in 2018. In her doctoral thesis she discusses development in electronic public administration in Hungary based on experiences of the Electronic Public Administration Operational Programme and the State Reform Operational Programme.

Her interest in this topic is based on her previous research, conducted at the research company ICEG European Center, and on her experience gained from her work at the Managing

Authority of Public Administration Reform Programmes of the National Development Agency (subsequently the Managing Authority of Public Administration Programmes at the Prime Minister's Office).

Currently she works for the Government Office of Budapest and for the Lechner Knowledge Centre, primarily engaged in the implementation of PADOP projects, and she also participates in related international research projects.

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