

NATIONAL UNIVERSITY OF PUBLIC SERVICE

Ph.D. Council

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**THE POSSIBILITIES OF THE DEVELOPMENT AND APPLICATION OF THE
MILITARY LOGISTIC SUPPLY CHAIN CONCEPT IN THE MULTINATIONAL
TRAINING PROGRAMS OF THE BACHELOR AND MASTER COURSES OF THE
NATIONAL UNIVERSITY OF PUBLIC SERVICE**

Ph.D. Thesis

Summary

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IDENTIFICATION OF THE SCIENTIFIC PROBLEM

Following Hungary's NATO accession in 1999 the Hungarian Defence Forces started a military reform, during the process of which it became obvious that national and international military logistics relations required significant changes so that the newly established military logistic organisations would meet the logistics-related challenges faced by a drastically downsized capability-based force both at home and in an international environment.

In parallel with this, similar changes had to be made regarding the structure and content of the military logistic courses of the Hungarian institutions of military higher education, and consequently new curricular requirements were set followed by new course syllabuses, the contents of which continuously followed the changes in the principles and procedures of military logistics. The so-called practice-based training and preparation began to gain importance setting new challenges for the departments involved.

Hungary's increasing contribution to international missions and operations lead to further changes in education and training. In 2000 the Supply and Finance Department of the former János Bolyai Military Technical College (currently Military Supply and Military Transportation Department of the Military Logistics Institute of the Military Sciences and Officer Training Faculty of the National University of Public Service) and the Defence Economics Faculty of the Vyskov Military University of the Ground Forces of the Czech Defence Forces (after 2004 Military Leadership and Defence Economics, later Faculty of Military Leadership) signed a Framework Agreement on Cooperation, on the basis of which the two institutions established the "COOPERATIVE TRAINING" Peacekeeping Logistic Training Program. The training program was launched in 2001. The Military Academy in Liptovsky Mikulas joined the program in 2003, followed by the Logistic School of the Bundesheer¹ in Vienna in 2004. In 2004 the content of the training program was further developed, its name was changed to FOURLOG, and it has been going on ever since.

Following the closure of the Üllői út campus of the Miklós Zrínyi National Defence University in 2008, the Department of supply and Finance moved to Hungária körút base, where it continued its activity under the control of the Institute of Military Logistics, which integrates

¹ Austrian Armed Forces

the Military Logistics Department, the Military Transportation Department and the Supply and Finance Department.²

The fact that both the Military Logistics Department and the Supply and Finance Department had their own logistics training programs lead to the idea of integrating the two training programs with the purpose of creating a multinational logistics training program containing common elements of tactical and operational logistics, which could be used both on BSc and MSc courses.

The previous training programs focused exclusively on the activities of the subunits providing logistic support, while the key organisations of the military supply chains acting at home and in the operational area and thus the components and role of the supply chain in the process of the provision of logistic support did not form part of the training program although understanding how military supply chains work forms the basis of Logistic Planning and of planning the tasks of logistic support.

After surveying the training, degree and curricular requirements of the training programs, I studied the basic management components of the supply chain and the logistic processes of military supply chains. During my study I arrived at the conclusion that I had to develop and work out the practical tasks of the training programs in harmony with these in order that they ensure that the above mentioned curricular requirements are met.

With regard to the FOURLOG training program it means that these tasks need to be worked out relying on the previously acquired knowledge of officer cadets and through demonstrating the structure of communication and information and product flow of supply chain management based on the execution level logistic processes of the military supply chain.

Concerning the MAGLITE training program, bearing in mind the higher level of the training, it has to be further developed concentrating on planning, work process structure, organisational structure as well as authority and command structure and based on the basic

² As a result of the organisational changes, in 2013 the following department came to be subordinated to the Institute of Military Logistics: Department of Supply and Military Transportation, Department of Operational Logistics, Department of Maintenance and Department of Natural Sciences

logistic processes of the military supply chain and also considering the network structure of the chain.

The subject of the essay is a **scientific problem** of practical relevance, which can be phrased as follows: **preparing and working out detailed analyses, planning guides and tasks which will focus on the information structure and methods of planning and analysis and lead the personnel participating in the program through the involved process of planning, thus enabling them to fill positions connected to the basic and execution level logistic processes on national and multinational logistics staffs both at tactical and operational levels.**

THE RESEARCH OBJECTIVES

To compare the essential components of civil and military supply chains and through the analysis of those components to explore the differences.

To analyze the functional elements of the NATO Operational Support Chain Management and the British Joint Supply Chain Concept and to examine how they work in comparison with the purely national logistic support system of the Hungarian Defence Forces when contributing to NATO missions and operations.

Through the comparison of the essential components of civil and military supply chains, to identify those functional components of the supply chains and their activities which, based on Training and Degree Requirements and curricula, are suitable to provide practical training for BSc and MSc logistics students.

To examine the information, planning and managerial components of military supply chains, the possibilities of their further development and to recommend ways of working with the individual components during the conduct of logistics training programs.

To study the history, the phases of development and practical working methods of the FOURLOG and MAGLITE multinational logistics training programs, to map and analyze their potential interfaces and to recommend that the two programs should be based on each other in military logistics BSc and MSc courses.

To examine the components of the Hungarian and the British tactical and operational level Military Decision Making and Planning Process paying special attention to the logistics

planning process and to recommend their application, bearing in mind the Hungarian peculiarities, during the conduct of the FOURLOG and MAGLITE logistics training programs.

THE HYPOTHESES OF RESEARCH

1. Familiarization with the components and functioning of civil and military supply chains helps military officer cadets and MSc students when they work on multinational logistics staffs during the conduct of the training programs and are tasked with planning and organizing logistics support.
2. The use of the integrated series of computer programmes (LOGFAS), which helps the activities of military supply chains, while performing the tasks of the training programs effectively contributes to the preparation of officer cadets and MSc students for the tasks they will be required to do on missions and operations.
3. The historical overview of the programs that have been running for decades facilitates familiarization with and the further development of the practical training programs and international activities of the National University of Public Service and its legal predecessors.
4. Thorough familiarization with the operational and logistic ideas and staff work methods of the British partners, in harmony with the relating principles of the Staff Work Regulation of the Hungarian Defence Forces, allows for the understanding of physical, technical, managerial and behavioural components of supply chain management, which will facilitate the effective preparation of Hungarian military officer cadets and officers.
5. The preparation and application of an operational level supply chain specific logistic planning system which follows the British and Hungarian staff work regulations and integrates their most useful practical working methods during the conduct of the MAGLITE Multinational Joint Logistic Training makes it possible for Hungarian officers to participate in the work of multinational syndicates.

THE METHODS OF RESEARCH

In order to achieve the research objectives, I used general research methods and specific methods required for the investigation of the topic, paying special attention to the innovative use of descriptive statistical tools. Due to the nature of the topic, my dissertation can be classified as a type of applied research. The methods I used include the following: library research, targeted analyses, analysis and synthesis, induction and adaptation.

1. I **studied** the theoretical sources and the domestic and foreign special literature relevant to the topic;
2. In the course of systematizing the historical part of my research topic I conducted **Interviews** to supplement the resource material available to me;
3. I **consulted** experts working in the various functional areas of the military (operational) supply chains both in Hungary and abroad, Hungarian and foreign staff officers involved in the process of operational planning, and I **analyzed** the steps of the Hungarian and the British operational planning process as well as the factors that have an impact on planning;
4. I carried out the comparative analysis of the Hungarian and the British logistic support systems;
5. I **synthesized** the empirical data, **drew inferences** and **made recommendations** for the use of the most effective methods.
6. Being a chief instructor of multinational training programs, I **examined** in practice the possibilities of building FOURLOG and MAGLITE on each other.

CHAPTER BY CHAPTER SUMMARY OF THE THESIS

In the first chapter of the thesis I explained why the topic is currently of interest and identified the scientific problem. In connection with the problem, I specified my research objectives, formulated my hypotheses and finally determined the research methodology to prove my hypotheses.

In the second chapter I gave an overview of the main stages of the development of logistics, military logistics, supply chains and military supply chains as well as those Hungarian and foreign views which have a determining effect on how supply chains work today.

In the third chapter I provided an overview of the early development of multinational logistics training programs and their place and role in the multi-cycle, linear training system of Hungarian military higher education. I identified those decisive events which lead to the fundamental reform of the Hungarian Defence Forces, including the logistic support system, determined the directions of the reform, focusing on the use of a leaner capability-based defence force, which is capable of the effective accomplishment of its tasks both at home and in a

multinational environment. Having thoroughly studied the available documents, background material and information as well as the former and currently effective subject syllabuses and training requirements, I explained how Hungary's increasing international role and contribution to NATO missions and operations influenced their changes.

In the fourth chapter of my thesis I revised the tasks of the FOURLOG Logistic Training using the methods of NATO's logistic information system and those of tactical level operational planning and I discussed the results, thus making it possible for military officer cadets to prepare for the tactical level tasks of the military supply chain in a multinational environment.

In the fifth chapter of my thesis I gave an overview of the tasks relating to the further development of the MAGLITE Multinational Joint Logistic Training and using effective practical methods I further developed and revised the existing tasks and prepared new ones. In the course of preparing the tasks I pointed out the cause and effect relationships that determined the necessity of revision. I carried out the comparative analysis of British and Hungarian logistic support systems and organisations involved in operational level planning, including logistic planning. After studying the British Logistic Estimate Aid Memoire and the Staff work Regulation of the Hungarian Defence Forces, I worked out, using effective practical methods and giving practical examples, the series of tasks through the use of which the Hungarian officers will become capable of carrying out the operational level logistic planning tasks of the MAGLITE Training.

In the sixth chapter I summarized the inferences drawn from the findings of my research, which can be found in the following part.

SUMMARY OF CONCLUSIONS

In my thesis I provided an overview of the evolution of logistics, military logistics and civilian and military supply chains and the similarities and differences between them, focusing on the most commonly cited theories and concepts in Hungarian and foreign specialized literature. I found that, in contrast with civilian supply chains, not the customer but the users are at the end of the chain, and the nodes are not the owners but the military organisations in a strict hierarchy. I pointed out that while the main focus of civilian supply chains is to make a profit, the primary aim of military supply chains is achieve the successful accomplishment of the operation.

I analyzed the structure and functioning of the NATO Operational Support Chain Management and the British Joint Supply Chain Concept, the specific tasks of the individual components of the chains, and compared them with the functional peculiarities of the national responsibility supply chain of the Hungarian Defence Forces. I established that, although the components and nodes of the studied chains are similar, the methods and principles of the execution of the support tasks within the chain can be different. These differences can be attributed to the differences in doctrines on the one hand and on the other hand to the differences in how the logistic organisations of the nations participating in the operations are used and the quality and quantity of the available resources.

In the course of examining the military supply chain concepts from a training perspective, I proved that the development of the information structure and planning analysing methods of the chain and their incorporation in the training programs combined with the acquisition of the knowledge included in the curricular requirements enable personnel to take up appointments linked to the basic and execution processes of the supply chain. I emphasized that through the systematic teaching of the military supply chain the cadets/students acquire adequate knowledge about the way the nodes of the chain works and about the management of the chain, which in turn allows them to take up appointments linked to the nodes of the chain.

Describing the beginning of the evolution of the training programs, I established their place and role in Hungarian military higher education. I pointed out those determining events that contributed to the revision of the training programs, proving that they cannot be static but they always have to follow the new directions of logistic support, and they have to be flexible in responding to the changes.

Based on my experience in conducting the training programs I arrived at the conclusion that the language knowledge acquired during BSc training is not sufficient to participation in these training programs, and the acquired language competence needs to be continuously improved, focusing on specialized language skills. I pointed out that the conduct of multinational training and the accomplishment of specialized tasks in a multinational environment are heavily dependent on the improvement of the acquired language competence, and proved that participation in these training programs effectively contribute to it.

I analyzed the possibilities of building the training programs on each other, their interfaces, and through the description of the further evolution of the training programs and the further development of the tasks involved I proved that the multi-cycle, linear military logistic

manager training can be most effectively carried out through participation in multinational training.

Bearing in mind the above mentioned inferences, I revised and further developed the practical tasks of the FOURLOG Logistic Training using the modules of the NATO LOGFAS system and pointed out that this system has to be regarded as part of the information structure of military supply chains. I created the logistic data base needed to use it and worked out new practical tasks.

I worked out the tasks of tactical level operational planning related to “Overviewing the Situation” and “Mission Analysis”, emphasizing the importance of planning tasks during the operation of supply chains. In connection with this, in the course of describing the risk analysis tasks I defined the concept of “Tolerance threshold”, collected the combat service support activities and created their definitions. By analysing and further developing the FOURLOG Logistic Training, I created the opportunity for military officer cadets to prepare for the tactical level tasks of the military supply chain in a multinational environment.

I revealed the cause and effect relationships which determined the directions of the further development of the MAGLITE Logistic Training. I carried out the comparative analysis of the British and Hungarian logistic support systems and arrived at the conclusion that there are differences in the particular ways the support systems and the planning and executing organisations involved in their operation work. The planning, the structural arrangement of the work processes, the corresponding organisational structure, the flow of information and finally the structure of the flow of resupply materiel, i. e. the physical and technical management components of the chains, are the same both in the case of the British and the Hungarian national responsibility military supply chains.

Based on the conclusion detailed above and the findings in specialized literature I worked out the practical tasks of operational level planning, including logistic planning. I proved that there is a close connection between the “business” processes of supply chain management, the management components of the supply chain and the network structure of management and in a given case the characteristics of the “business” (support) processes determine what kind of structure should be used, and the components of the chain should be adjusted to it.

I prepared a questionnaire for the assessment of the satisfaction of the participants of the MAGLITE Multinational Joint Logistic Training and for the assessment of the effectiveness of the training, processed their data, and examined the effectiveness of the training in the time periods involved. Following the examination, I inferred that the new tasks effectively facilitated the improvement of the participants' specialized military English language skills as well as their tactical and operational level specialized military knowledge.

CONTRIBUTION TO KNOWLEDGE

1. I identified those components and activities of supply chains which, based on the Training and Degree Requirements and subject syllabuses, are suitable for providing the participants of military logistics training programs opportunities to practise.
2. I proved that with regard to military logistics manager training, the multi-cycle, linear training structure is in harmony with the logistic assignments associated with military supply chains, which allows for the preparation of cadets/students for multinational logistic staff work.
3. Through the systematic analysis of military supply chains I established the similarities and differences in how they work, and I arrived at the conclusion that although the components and nodes of the studied chains are similar, the methods and principles of the execution of the support tasks within the chain can be different. These differences can be attributed to the differences in doctrines on the one hand and on the other hand to the differences in what role the logistic organisations of the nations participating in the operations play and the quality and quantity of the available resources.
4. I proved that the FOURLOG and MAGLITE training programs are not static but they follow the changes in the theory and practice of military logistics, which are the result of the evolving security environment and the ongoing military operations.
5. Through the comparative analysis according to the same principles of British, Hungarian and NATO supply chain concepts and of the theory and practice of the logistics part of British and Hungarian operational planning, I determined the elements of multinational training programs which are connected to the functional components of supply chains and allow for multinational execution, and worked out the training tasks suitable for practical application.
6. Through the analysis of the tasks of the FOURLOG and MAGLITE training programs I proved that training conducted in English in a multinational environment excellently

ensures the fulfilment of the requirements of the operational logistic preparation of Hungarian Defence Forces personnel.

RECOMMENDATIONS

I recommend the findings and conclusions of my thesis to those experts involved in operational planning who work in a multinational environment or in multinational logistic planning teams. The application of the practical working methods described in my thesis can contribute to the uniform and effective execution of the practical tasks of logistic planning.

I recommend it to those instructors of the National University of Public Service who would like to become familiar with the history and tasks of the FOURLOG and the MAGLITE logistic training programs, and who will in the future take part in these training programs as instructors.

I recommend it to the planning and logistic planning experts of law enforcement agencies, since the planning, risk analysis and risk management methods described in my thesis can also be applied there with a few minor corrections.

Looking at the possible directions of further research into the topic, additional treatises, studies and doctrines could be concerned with:

1. the detailed preparation of the system of operational logistic planning as part of the Operational level Joint Planning Procedure of the Joint command of the HDF;
2. the study of the planning and organisation of the multinational training programs and exercises conducted by the other institutes of the university using the lessons learnt from the FOURLOG and MAGLITE training programs.

THE PRACTICAL USE OF THE RESEARCH FINDINGS

My research findings and the practical working methods described in my thesis are perfectly suited to effectively support the work of planners working in multinational planning teams.

The practical working methods used in describing the planning tasks can help the planning and logistic planning activities of law enforcement agencies and disaster relief organisations.

The findings and experiences described in the thesis can be used in the course of the planning and organisation of international training programs, exercises and practice sessions to be conducted by the other institutes of the National University of Public Service.

List of Publications

1. Pohl Árpád – Venekei József – Szabóné Nagy Anikó – Molnár Sándor: A BJKMF, valamint a Pénzügyi és Számviteli Főiskola által közösen folytatott pénzügyi tisztképzés első két tanévének tapasztalatai, Bolyai Szemle, 1999/1. pp. 117-124
2. Pohl Árpád – Venekei József: A BJKMF Hadtáp és Pénzügyi Tanszéke által végrehajtott 1996. évi zárógyakorlat tapasztalatai, Katonai Logisztika 4. évf. 4. szám, 1996. pp. 134-141
3. Venekei József: Az alternatív üzemanyagok főbb fajtái, jellemzése, alkalmazásuk lehetőségei a Magyar Honvédségnél, ZMNE Konferencia kiadvány, 2005. december 8. pp. 33-49
4. Venekei József: Alternatives of the modernization of the Hungarian Defence Forces' fuel support tasks, AARMS, Volume 6, Issue 4, 2007. pp. 587-591
5. Venekei József: Experiences of application of LOGFAS (Logistics Functional Area Services) in the Multinational Logistics Training Program Fourlog 2008, AARMS, Volume 7, Issue 4, 2008. pp. 607-616
6. Réger Béla – Venekei József: The Joint Supply Chain, Support Chain and MAGLITE 2008/2, AARMS, Volume 8, Issue 2, 2009. pp. 363-374
7. Venekei József: A Fourlog 2008 Logisztikai Képzési Program végrehajtásának tapasztalatai és fejlesztésének irányai, Hadmérnök, IV. évfolyam, 3. szám, 2009. pp. 218-225
8. Venekei József: First Hand Experiences of Multinational Logistics Training Program MAGLITE 2011/1, Hadmérnök, VI. évfolyam 4. szám, 2011. pp. 270-275
9. Venekei József: Lessons Learned From The Execution of The Multinational Logistics Training Program Fourlog 2011, Hadmérnök, VI. évfolyam 4. szám, 2011. pp. 276-281
10. Venekei József: NATO Logisztika és a NATO Műveleti Támogatási Lánc Menedzsment, Hadmérnök, VII. évf. 4. szám, 2012. pp. 62-74
11. Venekei József: Az ellátási lánc kialakulása, fejlődése a polgári és a katonai logisztika elméletében és gyakorlatában, Hadmérnök, VIII. évf. 2. szám, 2013. pp. 108-119
12. Báthy Sándor – Venekei József: The vulnerability of fuel stockpiles, AARMS, Volume 11, Issue 2, 2012. pp. 287-293
13. Venekei József: Role of Bulk Fuel Installations (BFIs) and Field Pipeline Systems in Operational Support Chain, Hadmérnök, VIII. évf. 3. szám, 2013. pp. 30-36
14. Venekei József: Lessons learned from Multinational Logistic Training Program MAGLITE 2013/1, Hadmérnök, VIII. évf. 3. szám, 2013. pp. 37-42

Professional-academic CV

Personal data

Name: VENEKEI, József Péter
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Experience

2012-present National University of Public Service, Institute of Military Logistics, college associate professor
2008-2012 Miklós Zrínyi National defence University, Supply and Finance Department, college associate professor
2005-2008 Miklós Zrínyi National Defence University, János Bolyai Military Technical Faculty, Supply, Finance and Economics Department, college associate professor
1999-2005 Miklós Zrínyi National Defence University, Faculty of Management and Organistaion, Supply and Finance Department, college associate professor, deputy head of department
1997-1999 college associate professor, departmental section leader
1991-1997 János Bolyai Military Technical College, college senior lecturer
1988-1991 Máté Zalka Military Technical College, instructor
1990 2 months field practice as Military District (Armoured Infantry Corps) petroleum service chief, Tata, Hungary
1988 2 months field practice as brigade petroleum service chief, Aszód, Hungary

Area of expertise

military logistics, teaching

Activities/tasks

I teach fuel supply-related subjects, such as production technology, technical knowledge and other supply-related subjects on the military economics and management BSc

courses. With a view to developing the content of the subjects I am in day-to-day contact with my superiors who fill related appointments in the MoD and in the HDF and this new knowledge is continuously incorporated into the syllabuses. In the framework of the preparation for multinational tasks I have been involved in the FOURLOG and MAGLITE Logistics Training programs as a national commander for 6 years.

Education

1983-1988 UVVTU University, Faculty of Mechanical Engineering, Ulyanovsk, Russia

Main subjects: General: Military psychology and pedagogy, Military history, Military law, Mathematics, Physics, Computer science

Professional: Theoretical mechanics, Statics, Theory of mechanisms and machines, Machine parts, Engineering graphics and technology of structural materials, General thermodynamics, Hydraulics, Electrotechnics

Military specialized: Provision of supply, Supplying troops with liquid fuel, Use of fuels and special liquids, Technical equipment for fuel supply, Operation, maintenance and repair of fuel supply-related technical equipment, Bulk fuel installations, Field pipelines, Repair practice

Skills/competences

Mother tongue: Hungarian

Other languages: English NATO STANAG 6001 3.3.3.3.
Russian advanced (C1)

Social skills: Adaptability to multicultural environments acquired while working abroad.
Good communication skills acquired during my career as a(n) teacher/instructor.

Organisational skills: Good planning and organisational skills acquired during my teaching career and my involvement in the organisation of studies.
Good leadership skills acquired while filling various leadership positions

Other competences: ECDL Certificate, 2000

Other qualifications: high-level logistics manager

Other information: member of the Hungarian Logistics Association