# Introduction of the author


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| **Candidate:** | Balázs Pándi<br>Msc Software engineer, Economist |
| **Title of the dissertation:** | Analysis of the field communication system,<br>to increase applicability and efficiency. |
| **Supervisor:** | Lt. col. Zoltán Rajnai PhD<br>habil. asc. prof.<br>PhD degree from military science |
| **School of PhD studies:** | Zrínyi Miklós University of National Defence<br>Bolyai János Faculty of Military Technology<br>School of PhD studies in Military Technology |


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## I.
## Definition of the scientific problem

Regarding the topic it can be stated, that except for the continuously modified development concept, field-exercise, and experiment, the only one element of the field communication system has gone through effective changes, which does not substantially change the problem that the entire system is technologically obsolete, and outdated in terms of application methodology and organisation.

According to short term expectations, the field communication system will keep staying in operation. The improvement of the technological conditions of the current system cannot be expected, in this case – *confirmed by military experts* – only the complete replacement can be the solution. After making these observations, the candidate raises the question of how to make the current field communication system more capable of meeting the requirements of modern military operations – *until the time of replacement*.

In the candidates' view – *using a system based approach* – in case of the field communication system, the improvement of the *application mode* and the strongly connected *system elements*, or in other words the *application methodology* can be temporarily solution, especially in light of the fact that the regulations concerning the application, have been invalidated over half a decade ago without any replacement.

## II.
## Research objectives

**Research objectives:**

1) Due to the lack of professional regulations, find analyse and evaluate all laws and normative, based on which the current requirements, expectations from the system can be clearly defined.

2) In knowledge of the requirements, expectations present and evaluate the applicability and field of applications of the field communication system. On a system based approach identify and define the application modes of and connected system elements of the communication system, which can be modified or converted to bring the applicability of the field communication network closer to the level required by the command and control system.

3) As a solution for the modification or conversion, develop a user software application, which can be applied in both domestic and international terms, using the existing software and hardware environment – *essentially* – without any additional investment.

4) Define and make a recommendation on the further development directions and methods of the software application to be developed.

## III.
## Conclusion

1) The candidate has pointed out that the greatly unregulated state of the field communication system is caused by the lack of professional regulations regarding the communication system. Despite current unregulated state, the field communication system will stay in operation, during which the application is – *mainly* – organised, executed based on the previous policies. The modernisation programmes of the stationary subsystems were not followed by the modernisation of the field segments applied by the land forces. The technology, policies, and methodology used by the communication system is obsolete, only complete replacement can be the solution, but until the time of replacement, the current system has to be operated. He has recommended the creation of a branch regulation in order to resolve the current unregulated state.

2) The candidate has exposed, that the available financial-technical assets, do not make it possible or necessary to computerise the entire document system. Because of this, the end-parameters, based on which the elements or application modes of the document system which require replacement or modification can be identified. He has pointed out that the computerisation of certain diagrams – *within the* – communication and computer plan in the combat document system of the brigade using a specialised software application can enhance the reaction time of the command and control of the field communication system, through which the

command and control activity of the troops can be brought close to what's defined in the expectations.

3) Based on the partial results he has managed to identify the application mode, and subsystems, whichs' computerisation can promote the improvement the command and control activity in the field communication system. During this, based on the user requirements, through continuous refinement steps he has developed a specialised software application. He has identified the software environment for the actual implementation. The software has been tested, during which the minimal technical-technological conditions, requirements, hardware requirements regarding the system have been ascertained. The product has been evaluated, and the directions of further development have been identified.

## IV.
## Contribution to knowledge

The candidate considers the following as contribution to knowledge:

1) He has processed, analysed and evaluated using scientific methods, the laws, normatives, and doctrines, based on which he has identified the current requirements for the efficient application of the field communication system.

2) He has proved regarding the application – using the given the current obsolete technological abilities - of the field communication system, that with the computerisation of the communication and computer command and control methodology the efficiency of the application of the system can be increased. He has identified the group of system elements and application modes, which can be computerised.

3) Based on the application modes, and connected system elements, which can promote the improvement the command and control activity – starting from user requirements – identified the most suitable programming language, and developed an upgradable specialised software application related to the computerisation of certain parts of the command document system.

**Budapest, 20th of August 2009.**

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