

**NATIONAL UNIVERSITY OF PUBLIC SERVICE
DOCTORAL SCHOOL OF MILITARY ENGINEERING**

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Opportunities and Challenges of Social Media in the Defence Sector

PhD Dissertation Author's Outline

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The Formulation of the Scientific Problem

The scientific problem of this dissertation **arises from the duality** defined above: there exists an unavoidable tool which gives rise to **several security threats** which at the same time **offers a vast array of opportunities in the defense arena** of a nation.

The risk arising from the use of social media is enhanced by the fact that it allows access on several devices (PC, tablet, smartphone, smart glasses,¹ smart TV, smart watch, etc.) which are vulnerable in different manners and to different extents.² This kind of interoperability stymies safety regulation as it must be extended to several devices which allow varied levels of protection and portability is an opportunity for employees to circumvent the possible prohibition of social media use at the workplace by using their own device. Another factor arising from the nature of the work (primarily among those performing intellectual work) is that free time is mixed with working time: we not only lead our private lives in the workplace by using social networking sites there but we also work at home sometimes, thereby overshadowing family life.³ Technological innovation and the constant transformation of various social networking sites causes additional difficulties as some kind of regulation needs to be adopted and information and data security guaranteed in a constantly changing environment.

Unfortunately, **information and data sensitivity** is not **low** only in the case of the average user, inadequate user awareness carries a serious risk in the case of political decision makers and people working in the defence sectors as well. Yet, where information operations have an ever increasing role in warfare as well, information and data security play an ever larger role, especially in the defence sector. Although the use of social networking sites is unavoidable, **legal regulation thereof is a weak area**. Statutory regulation in relation to social media is not just deficient in terms of data security, but the restrictions on its use and ethical regulation are also areas that need to be further explored.

¹Project Glass developed by Google (better known as Google Glass or “GG”) is an optical head-mounted display that depicts augmented reality, which, when connected to a smartphone, visualises the various information on the display of the glasses. The device is capable of making the work of military and police forces more efficient in innumerable ways, e.g. by displaying data bases, conducting concealed and confidential communication, managing multi step identification and authorisations, supporting training, etc. Therefore, it carries several security risks; it is no coincidence that wearing of the device was prohibited in several places (casinos, banks, hospitals, while driving, etc.) even before it appeared. For more information on the risks of GG see the study “Using Glasses to Ensure Safety” by Szilárd Török.

²E.g. Apple products are better protected against malevolent programs than Android-based systems.

³In addition a tablet also allows an opportunity to work and browse the internet while travelling which can further increase our vulnerability by e.g. connecting to an unsafe Wi-Fi network.

Continuous change on social networking sites also means that not just defence methods need to be kept up-to-date but also the procedures that support the performance of a certain task as new opportunities may arise or methods employed earlier may become redundant. All of this is extremely important in terms of **education**, which in my view is an **area to be developed**.

The skills that we are able to achieve with appropriate use of social media appear at the various organisational units. In the case of national defence, law enforcement and national security organisations, rivalry between and within the various professions is no novelty, however, as we can also observe in connection with the fight against terrorism, **the framework for the cooperation between the organisations must be created** as the desired results cannot be achieved in the absence of this. Subject to the target groups and the operations the various tasks must be performed by different organisational units but in the case of a more complex system of tasks this demands tight cooperation. For example, recruitment is performed by the Hungarian Defence Forces Military Administration and Central Registry (the “HDF MACR”), but in my view recruitment is closely linked to the positive perception of the Defence Forces which plays a role in supporting the tasks of the army and increasing the ability of the HDF to enforce its interests. The more complex a task, the more organisations will be affected. If we rely on the above example in relation to measures to combat terrorism, not much proof is needed to demonstrate the organisational framework required for realising cooperation and to work out the performance of supporting tasks.

During my research I examined **several areas** where **the activities of enforcement organisations are not public**, therefore, I was able to perform my work based on the statutory framework (e.g. Act CXXV of 1995 on National Security Services) and information available from open sources. Examples are influencing political decision making or the various intelligence gathering procedures. Edward Snowden’s appearance also drew public attention to the operations of the Hungarian national security services in this area. Although some information was leaked in Hungary in this respect, such as the fact that the Special Service for National Security is a subscriber of the Finfisher spy program, this has not reached the levels similar to those in the United States.⁴ We can draw assumptions on the abilities of the services from different public data such as public procurement procedures. One example is a notice published on 5 June 2015 on the failure of the public procurement procedure, which testifies to the fact that the Special Service for National Security wished to purchase various softwares for HUF 5.25 million, among others, for purposes of identifying the security gaps of websites,

⁴Not to mention that leaked information must also be evaluated with due critique.

identification of users based on IP addresses or access to devices connected to the network such as web cameras. In addition, we must also understand that the scientific processing of the subject **is yet little researched in the relevant international literature**, but recent trends are showing a rise in this respect. During the research the literature was often comprised of doctrines and strategies, which strengthened the professional rather than the scientific processing of the subject.

The incidents during the 2016 Brexit campaign and especially during the US presidential elections campaign highlighted the role of social media in influencing political decision making. Although the impact of fake news spreading on social networking sites on Brexit or the election of Donald Trump as president is not measurable empirically, public opinion holds that social networking sites did have a dominant responsibility. With adequate planning, the activities performed on social networking sites **may have a powerful impact**, with consequences not only in **the life of a state** but also **globally**.

Considering the above, I am of the view that the examination of the expansion of social media in the defence arena warrants a complex approach of the scientific problem presented by it. Accordingly, in my dissertation proposal I therefore present risks and opportunities arising from the use of social media that follow from each other.

Research objectives

The purpose of my research is **the identification of the challenges, risks and threats present in the defence sector that arise from social media**, and the examination of **the opportunities presented by social media for achieving the goals of various defence, law enforcement and national security organisations**.

As a result, **I consider as a partial aim of my research**, after the identification of threats **the creation of those security procedures** thanks to which the threats stemming from social media can be minimised. The identification must entail **the differentiation of the various branches of the defence sector** as the threats present themselves in different manners and to varying extents.

Another part is **identification of the procedures** with the help of which the **different organisations can efficiently perform the tasks determined**. I will thus analyse the role of social media in gathering intelligence (OSINT, electronic reconnaissance, hereinafter SIGINT, gathering of information using human resources, hereinafter HUMINT) and examine **how it is**

applicable in information operations, in relation to counter-terrorism action, including civilian-military operations.

Finally, I consider it my duty to **determine in what form, in what organisational framework the use of social media can be integrated in the system of defence, law enforcement and national security organisations.**

Presentation of research hypotheses

During the processing of the research subject I formulated the following hypotheses:

H1 Social media is new inter- and multidisciplinary professional area.

H2 Social media is a special area of cyberspace as a battlefield

H3 Social media use is as partially regulated area of Hungarian data and information security legislation, which plays a particularly important role in the case of national defence, law enforcement and national security organisations.

H4 Self perception related to safety awareness is influenced by gender, education, interest in engineering and human sciences, any courses taken on the subject and the time of use of various devices.

H5 Social media offers several opportunities for the performance of the duties of defence, law enforcement and national security organisations defined by law. In order to properly utilise the opportunities afforded by social media the uniform rules on their use should be introduced and their tasks should integrate the defence, law enforcement and national security organisations.

Research methods

The basis of my research is scientometric examinations. I examined the appearance of social media in scientific discourse with key word analysis. This research was first coupled with trend analysis, and second, I examined the scientific area appearance of the various publications through network analysis.

During my research I conducted a survey with a questionnaire among the students of the National University of Public Service. The survey examined the human aspects of data and information safety awareness taking the Knowledge, Attitude, Behaviour model as the basis. When processing the questionnaire I performed a cross table analysis.

The procedures I elaborated on the one hand explore the opportunities for adaptation of international models in Hungary and second, they wish to solve the problems that arise during day-to-day practices.

When selecting research methods I applied multiple special (partial) methods. The research essentially employs theoretical and logical research methods, of which I use the methods of analysis, synthesis, comparison, generalisation, induction, deduction, analogy and hypothesis.

To this end, I gathered the relevant international and domestic literature dealing with the subject, I analysed the defence and security policy strategic requirements, I processed case studies, prepared interviews and processed information obtained from study trips, professional conferences and exchanges of information.

Brief Description of Examination Performed

Chapter 1

I presented the formation of social media, outlined its components and examined its trends. I explored the appearance of social media in international scientific discourse with a scientometric analysis, then I narrowed the examination of scientific publications to five examination areas. Accordingly, I analysed the appearance of social media in research on military, law enforcement, national security, political and governance subjects. Thereafter, I examined the keywords of the publications and analysed the connection points of the five inspection areas with the help of network analysis. Finally, I identified the connection points of social media as a specialised area.

Chapter 2

I outlined the conceptual development of cyberspace and the development and components of information operations. I examined the international and domestic strategies related to cyber safety. I explored the characteristics related to the individual and societal use of social media use. On the basis of these, I determined the risks inherent in the use of social media for individuals and the various societal sub-systems. Taking as the basis strategic documents dealing with information operations, I identified those areas of application of social media which directly or indirectly support the implementation of information operations.

Chapter 3

I scrutinised the relationship between social media and the private sphere and presented those data collection procedure conducted in social media that significantly narrow the individual's private sphere. I analysed trends related to cyber attacks and legal regulation related to data protection. Thereafter I analysed the regulations of the Hungarian Defence Forces and Police related to the use of social media and expounded the deficiencies inherent therein. I conducted

a survey with a questionnaire among the students of the National University of Public Service with regard to their data and information security awareness. I reviewed the results received with a cross-table analysis.

Chapter 4

I scrutinised the role that social media plays in the case of national security and law enforcement organisations and what its function is in influencing political decision making. Based on international models, I explored the possibility for adapting social media in the operation of military, national security and law enforcement organisations.

Summary of conclusions

In my dissertation proposal I explored the role of social media in the defence sector. I did this recognising that within a relatively short period of time use of social media has become unavoidable not only in private life but also for the performance of work. Social media is the arena of constant innovation as a result of which the various pages are expanded with a number of new functions. Innovation is also directed at extremely strong research and development activity, where Facebook or Google are among the foremost researchers of artificial intelligence and autonomous means of travel. The popularity of the sites, the opportunities for their application are in my view notable for the players of the defence sector as well.

In the first chapter I explored the concept and appearance of social media and I outlined some social networking sites that are most relevant for the purposes of my subject. Upon analysis of the trends related to use it was confirmed that the opportunities for application offered by social media cannot be ignored.

Using the Scopus and Scimago Journal Ranking databases I examined how social media appeared in international scientific announcements and I narrowed it down to five areas of inspection: research on military, law enforcement, national security, government and political subjects. I applied keyword analysis to investigate what scientific areas within the five examined subjects the social media related research can be linked to. **I determined that military and law enforcement research essentially focuses more on engineering science areas, national security research is divided nearly equally among engineering and social sciences, whereas political and government research explores social media almost entirely from a social science approach.** I also examined the number of publications related to social media and I **determined** that this is a relatively **new research area**. The register analysis performed with the help of the SciVal database also demonstrated that, as a research area, social

media is linked to numerous scientific areas, among which the five areas that I analysed figure strongly, which reinforces the research of social media related to the defence sector.

In the second chapter I examined the evolution of cyberspace as a battlefield and the development of cyber safety strategies in the international and domestic environment. Considering the areas of use of social media, based on the strategic documents analysed **I determined that social media can be interpreted as a special area of the information battlefield.** Based on this **I identified those areas of application and procedures that can be designated as part of the information battlefield.**

In the third chapter **I explored the role of data and information security in cyberspace. I determined that social media use** leads to serious **diminishing of the private sphere** due to the procedures that enable the observation of users. In my view we can clearly state that **users with low data and information security awareness are more prone to cyberspace threats.** Considering the extent to which social media use affects our private sphere, we can certainly state that **an adequate regulatory framework is indispensable.** To this end I explored Hungarian legislation related to data and information security, also covering the European Union regulation that entered into force from May 2018. Based on an analysis of Hungarian legislation I determined that since the beginning of the 2010's the legislative framework can clearly be designated as progressive, the decision makers were among the first among the Member States of the European Union to recognise the threats posed by cyberspace and worded up-to-date responses in the formulation of strategies and legislation. The applicable legislation such as the Act on Electronic Information Security of State and Municipal Organisations, the Act on the Right of Informational Self-Determination and on Freedom of Information or the Act on the Identification, Designation and Protection of Essential Systems and Facilities clearly point in the direction of the European regulation effective from May 2018. In spite of this, the regulation related to social media use is not as clear. During my inquiry **I determined that the data protection notice regarding social media contains a contradiction.** My investigation of the trends of cyber attacks **led to the conclusion that the defence sector is an accentuated target of attackers.** On the basis of this I examined the parts of the publicly accessible regulation applicable to the Hungarian Defence Forces and Police that are with regard to social media usage. Upon assessment of these **I determined that inappropriate use of social media may gravely violate the regulations specified by the Act on the Status of Military Personnel and the Act on the Service Status of Professional Members of Law Enforcement Agencies, however, no regulation was implemented that**

would clarify these in a reassuring manner. In view of this, I formulated recommendations in relation to the Hungarian Defence Forces and Police with regard to use of social media.

I believe that **in addition to an adequate regulatory framework, education is at least as vital** in increasing digital immunity. As a result I conducted a survey with a questionnaire among the students of the National University of Public Service with regard to their data and information security awareness. The results received led me to **determine the self perception of students related to security awareness is influenced by several factors, one of which is whether they attended any courses on data and information security earlier.**

In chapter four I explored those additional areas of the defence sector beyond the military application where social media can be applied. Based on this, **I identified those areas that are relevant in terms of national security and law enforcement.** The inspected areas **reflect that** (including military application) **essentially it is applied for realising military objectives.** From this premise I investigated the role of social media in political decision making. **I determined that the large social networking sites are capable of influencing the political decision making of states to an extent that clearly necessitates their regulation.**

Considering that **social media effectively supports the work, as such is defined by law, of defence, law enforcement and national security services in numerous areas, I put forward recommendations for organisational solutions of tasks related to social media in the case of the Hungarian Defence Forces, the Police and the national security services.**

New scientific results

My scientific findings

T1 I demonstrated that social media is the joint area of human and engineering sciences which is dominantly related to engineering scientific areas in military research.

T2 I determined the framework and procedure of social media as a special area of the information battlefield.

T3 I identified the deficiencies of the Hungarian regulatory framework with regard to data and information security related to social media use. Based on these I formulated a recommendation for the establishment of regulation with regard to social media use for the purposes of the defence, law enforcement and national security arena.

T4 I proved that self perception with regard to security awareness is influenced by gender, an engineering or social science focus and whether the person attended any courses in this area. My research, however, refuted the theory that education and the time spent using a device influences self perception with regard to security awareness.

T5 I identified the system of the tasks related to social media supporting the performance of the duties defined by law of the defence, law enforcement and national security services. Based on this, I put forward a recommendation for organisational solutions related to social media at the Hungarian Defence Forces, the Police and the national security services.

Practical application of research results

The findings included in my dissertation proposal are suitable for:

- supplementing the currently existing regulations related to data and information security based on the factors I recommended;
- integrating the application areas I identified in the organisation of the Hungarian Defence Forces, Police and national security services in the interest of development of skills;
- increasing data and information security awareness of the students of the National University of Public Service in education.

Recommendations

In my thesis I investigated the application of social media in the defence sector, therefore I recommend use of my results:

- primarily to the experts involved with cyber security of the Hungarian Defence Forces, the Police and the civilian and military national security services;
- for development of courses related to data and information security awareness at the National University Of Public Service;
- to researchers and educators involved with the subject;
- to professionals involved in the working out and managing data and information security related development strategies.

LIST OF PUBLICATIONS

Hungarian book chapters

1. A közösségi média szerepe a katasztrófaelhárításban a Sandy - hurrikán példáján keresztül, In: Horváth Attila (szerk.) Fejezetek a kritikus infrastruktúra védelemből: Kiemelten a közlekedési alrendszer. 319 p., Budapest: Magyar Hadtudományi Társaság, 2013. pp. 281-292., (ISBN:978-963-08-6926-3)
2. A közlekedést támogató alkalmazások biztonsági aspektusai, In: Horváth Attila-Bányász Péter (szerk.) Fejezetek a létfontosságú közlekedési rendszerelemek védelmének aktuális kérdéseiről. 152 p., Budapest: Nemzeti Közszolgálati Egyetem, 2014. pp. 47-60. (ISBN:978-615-5305-30-6)
3. Az ellátási lánc kiberfenyegetettsége, különös tekintettel a közlekedési alrendszer biztonságára, a szervezett bűnözés hatásai, In: Csengeri János, Krajnc Zoltán (szerk.), Humánvédelem - békeművelési és veszélyhelyzet-kezelési eljárások fejlesztése. 791 p., Budapest: Nemzeti Közszolgálati Egyetem, Hadtudományi és Honvédtisztképző Kar, 2016. pp. 643-673. (ISBN:978-615-5305-35-1)
4. Bányász Péter, Orbók Ákos: Bevezető az "okos" eszközök világába, In: Bányász Péter, Orbók Ákos (szerk.) Éves továbbképzés az elektronikus információs rendszer biztonságával összefüggő feladatok ellátásában részt vevő személy számára. (Nemzeti Közszolgálati Egyetem) Budapest: Nemzeti Közszolgálati Egyetem, 2016. pp. 5-31.
5. Az "okos" mobil eszközök jelentett kiberbiztonsági kihívások, In: Bányász Péter, Orbók Ákos (szerk.) Éves továbbképzés az elektronikus információs rendszer biztonságával összefüggő feladatok ellátásában részt vevő személy számára. (Nemzeti Közszolgálati Egyetem), Budapest: Nemzeti Közszolgálati Egyetem, 2016. pp. 76-108.

Articles in foreign language publication

1. How the social media may be used to paralyse the critical infrastructure? Economics and Management 2013:(4) pp. 7-14. (2013), ISSN 1802-3975

Publications in conference issues

1. Spies Act as a Spy: The Edward Snowden Case, In: Milan Sopóci, Mária Petrufová, Miroslav Školník, Viera Frianová, Jaroslav Nekoranec, Lubomír Belan Jirásková, Milota Kustrová, Stanislavmorong (szerk.), Manažment - teória, výučba a prax 2014: zborník príspevkov z medzinárodnej vedecko-odbornej konferencie. 380 p., 2014. pp. 194-201. (ISBN:978-80-8040-496-3)
2. The Role of the Cybersecurity in the Economy, In: Milan Sopóci, Lubomír Belan (szerk.) Manažment, teória, výučba a prax 2013: zborník z príspevkov z medzinárodnej vedecko-odbornej konferencie: 25. - 27. septembra 2013, Liptovský Mikuláš. 398 p. (ISBN:978-80-8040-477-2)

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1. Dangers of social media through the example of the Arab Spring, Európai Szellem / European Spirit 4: pp. 20-32. (2013)

Peer-reviewed journal articles

1. Az okos mobil eszközök biztonsága, In. Hadmérnök 13:(2) pp. 360-377. (2018)
2. Social engineering és közösségi média, In. Nemzetbiztonsági Szemle 5: (1) pp. 59-77. (2018)
3. Kiberbűnözés és közösségi média, In. Nemzetbiztonsági Szemle 4:(4) pp. 55-74. (2017)
4. A közösségi média, mint az információs hadszíntér speciális tartománya, In. Hadmérnök, 12:(2) pp. 108-121. (2017)
5. A közösségi média szerepe a lélektani műveletekben az elmúlt időszak válságainak tükrében, In. Szakmai Szemle 13:(1) pp. 61-81. (2016)
6. A közösségi média, mint a nyílt forrású információszerzés fontos eleme, Nemzetbiztonsági Szemle, 2015/2, pp. 21-36. (2015) ISSN 2064-3756
7. Egy terrortámadás visszhangja a közösségi médiában, In. Belügyi Szemle (2010-) 63:(10) pp. 71-85. (2015)
8. A közösségi média használat biztonsági kérdései a védelmi iparban, Hadtudomány (Online) 24:(1) pp. 49-67. (2014), ISSN 1588-0605
9. Gondolatok Horváth L. Attila: A terrorizmus csapdájában című könyve kapcsán, Hadtudomány (Online) 24:(1) pp. 205-209. (2014) ISSN 1588-0605

10. Horváth L. Attila: A terrorizmus csapdájában, Sereg Szemle: A Magyar Honvédség Összhaderőnemi Parancsnokság Folyóirata XII:(3) pp. 159-161. (2014) ISSN 2060-3924
11. Bányász Péter- Orbók Ákos: A katonai logisztika időszerű kérdései, In. Hadtudomány 23:(1-2.) pp. 163-167. (2013) ISSN 1215-4121
12. Bányász Péter- Orbók Ákos: A NATO kibervédelmi politikája és kritikus infrastruktúra védelme a közösségi média tükrében, Hadtudomány (Online) XXIII:(1 elektronikus) pp. 188-209. (2013) ISSN 1588-0605
13. A közösségi média szerepe a települések életében, kiemelten a rendkívüli események kezelésében, Településföldrajzi Tanulmányok 2:(2) pp. 137-145. (2013) ISSN 2063-4315
14. A közösségi média szerepe a 21. század hadseregeiben, In. Hadtudomány 22:(1-2) pp. 152-161. (2012)
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16. Terroristák és terrorelhárítók a közösségi médiában, Technikai és technológiai fejlődés új kihívásai a terrorelhárításban, Terrorelhárítási Központ Tudományos Tanácsa által 2014. évben meghirdetett pályázata, első helyezés

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2. The Islamic State in the Social Media, In: Kiss Dávid, Orbók Ákos (szerk.), A haza szolgálatában 2014 konferencia rezümékötet. 170 p., 2014. p. 152. 1 p. (ISBN:978-615-5491--88-7)

CURRICULUM VITAE

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PROFESSIONAL EXPERIENCE

- 2017- 2018. New National Excellence Program of the Ministry of Human Capacities
Researcher
- 2017-2018. National University of Public Service under the priority project KÖFOP-
2.1.2-VEKOP-15-2016-00001 titled „Public Service Development
Establishing Good Governance” in the Concha Doctoral Program”
Researcher
- 2017-2018. National University of Public Service under the priority project KÖFOP-
2.1.2-VEKOP-15-2016-00001 titled „Public Service Development
Establishing Good Governance” in the Cyber Security Ludovika
Workshop”
Researcher
- 2016.- National University of Public Service
Assistant Lecturer
- 2015-2016. National University of Public Service
Cooperation and Institutional Development Adviser
- 2015- The Hungarian Association of Military Science Kápolnai Pauer István
Youth Club
President
- 2014- 2018. The Association of Hungarian PhD and DLA Students Section of
Military Sciences
Scientific Advisor

2014. Military Science Workshop,
Researcher
- 2013- 2016. The Hungarian Association of Military, The Defense Economics and Logistics Section
Secretary
- 2012-2014 Critical Transport Infrastructure Protection Priority Research Area, Project #TÁMOP-4.2.b-11/2/KMR-001
Researcher

EDUCATION

- 2012- 2015. Doctoral School of Military Engineering, National University of Public Service
- 2005-2011. Eötvös Loránd University, Faculty of Law
- 1999-2004. Gervay Mihály Posta- és Bankforgalmi Szakközépiskola, Budapest

MAIN FIELD OF RESEARCH

- Social Media
- Cybersecurity
- Social engineering;
- Critical Infrastructure Protection;
- Open Source Intelligence.

PRIZE

- 2014- Counter Terrorism Centre's Scientific Council, first prize
- 2014- Korponay János-prize, The Hungarian Association of Military
- 2012- The Hungarian Association of Military, first prize

ACADEMIC AND SOCIETAL ACTIVITIES

- The Hungarian Association of Military
- The Association of Hungarian PhD and DLA Students Section of Military Sciences
- Felderítők Társasága
- National Association of PhD students in law enforcement
- Hungarian Political Science Association

LANGUAGE SKILLS

- German
- English

LIST OF PUBLICATIONS

[MTMT](#)

[Academia.edu](#)