

**NATIONAL UNIVERSITY OF PUBLIC SERVICE  
DOCTORAL COUNCIL**

József Balla police Lieutenant Colonel

**Security increasing effects of travel and personal identity  
documents containing biometric data  
on border and public security**

presentation of author on the doctoral (PhD) dissertation

**Budapest, 2013**

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**Supervisor:**

Dr. Prof. Sándor Fórizs PhD  
ret. police brigadiar general  
university professor, CSc

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## **DEFINITION OF SCIENTIFIC PROBLEM**

One of the highlighted missions of the European Union (EU) is to assure the establishment of the area of freedom, security and justice for the app.500 million inhabitants residing in twenty seven Member States, based on the balance of the three elements. One of the leading challenges of the EU, what has to face with is the illegal migration. The public is the constant witness of the flow of illegal migrants arriving to Hungary, Greece or Italy. Illegal migration became part our everyday life. According to the present knowledge, information and practical experience this situation will not even change in the near future.

Hungary by performing border surveillance and border checks at the Schengen external borders and by the in-depth checks now is responsible not just for security of itself but that for the entire Schengen area.

The controlling system can only be called secure if it guarantees the recognition of risks, interfere further travel of persons constituting danger to the national and public security, prevent and recover the unlawful activities.

To sustain security and assure possibility of free movement it is essential to state and determine the identity both of the EU and third country nationals without doubts. The free movement and stay inside Schengen area result a new type of challenge, as beside those who entered and stayed illegally, it is essentially to filter out those who entered legally but their staying become illegal. The security requires identifying everybody both at the external borders both inside the Schengen area

The question is only that what kind of methods, what kind of controlling mechanisms could reach the security in such a way that the right for free movement of the EU citizens will not be restricted and to respect the personal rights in the meantime. That is the scientific problem.

## **HYPOTHESIS OF DISSERTATION**

- 1) In my judgement the appearance of the claim to apply biometric data during personal identification process has a close relation with the creation of balance among freedom, security and justice what should be secured by targeted contracts and programs, but the measures have been taken so far can only guarantee partially the increase of the level of security.
- 2) Council Regulation (EC) No 2252/2004 on standards for security features and biometrics in passports and travel documents issued by Member States contributed to the unification of content element of documents and serves as an example to follow for

other documents including biometric identifiers. The inclusion of biometric data in documents cannot cease security deficit by itself, in relation to the traditional identification.

- 3) During police control and border checks the identification has the same content and in the decision making process of “identical” or “not identical” based on the anatomy features cannot be considered as safe decision processes. The exclusion of negative subjective facts out of the identification process has security increasing effect.
- 4) In Hungary the check of biometric data during police measures completes and not substitutes the traditional, anatomy feature-based identification. The security profit derives from the combination of traditional and biometric data controls. In case of suspicious situation concerning the validity of document or of person, the biometric data will be served as a justification right on the scene.
- 5) The document controlling mechanisms are not in fully accordance with the obligatory document issue standards yet. Different data recordings (like e-passport, Visa Information System) require different controlling mechanisms. The financial investment in document control is not in portion and in accordance with the level of increasing security.

## **RESEARCH OBJECTIVES**

During the exploration of resources I had set the objective to compose a dissertation including, systematized, adequate and alternative solutions, which could serve as a scientific base to further analysis and research of concerning fields.

Application of biometric data in ID documents is a strategic question in security guarantee, so the objectives had been adjusted to this point of view.

1. I had defined as a highlighted strategic objective to survey casual and effect relationship between the possibility of biometric identifiers and practical usage in the aspect of global environment and that of security influence on the Schengen area.
2. As a general objective I had focused on the contracts, programs creating area of freedom, security and justice, in an aspect of the appearance and practical value of biometric data.
3. As a key objective I had defined the analysis and evaluation of the way of changes of element of biometric data, their inclusions in personal documents and the evolution of biometric identifiers based on the influence of decisions and programs creating freedom security and justice.

4. Individual objective was to prove that negative influence of traditional anatomy featured police targeted identification can be decreased by the biometric identification process.
5. As a special objective had been pointed out to highlight that how can realize the application of biometric data stored in data warehouse and documents in police control and border checks, which will be done by evaluations of concerning researches, project.
6. Personal objective was to hand over the theoretical knowledge and practical experience gained in the relevant field, even by participating in elaborational works and project activities.

## **RESEARCH METHODS**

Concerning the applied research methods, it is necessary and statutory to pursue completeness by means of holistic approach. It is concluded from that the personal identification by biometric data embraces more study fields. Biological sciences and engineering sciences can be mentioned. I consider important the multidisciplinary approach and elaboration.

I assumed it is important to survey the chosen subject both in theoretical complexity and that of practical creation. Deriving from that I highly focused on to create the accordance of research objectives, scientific results, conclusions and applied methods.

I approached the theoretical questions from the side of the statutory value legal norms, with attention to the possibilities of practical realization, thus I focused on the analysis of relevant EU documents ruling the police and judicial cooperation.

During the process of sources, after applying analysis and synthesis, with the help of induction and deduction I intended to reach the definition of generally accepted conclusions from the general principles. To ensure objectivity I applied the possibility of abstraction.

. During the analysis of some personal identification I applied comparative and mathematical methods as well.

The document analysis had been done in every case in relation of the subject research in order to produce a dissertation not only a summary or a categorization but to reveal the casual and effect connections.

I paid attention to the collection and analysis of practical experience and had drawn conclusions and definition of proposals.

I made consultations with relevant experts and even my own practical experience had been built in to my dissertation.

## **SUMMARY OF COMPLETED SURVEY BY CHAPTERS**

My dissertation excluding introduction and conclusions consist of five chapters, each chapters are finished with summary of research and mid-conclusions.

1. Appearance of biometrics in the service of freedom, security and justice.

It can be stated by the survey of casual and effect relation and chronological analysis of the documents that the appearance of the claim and necessity for biometric data in personal identification is essential in the creation of area of freedom, security and justice. The identification through biometric data is a community wish and represents a way to be followed by every Member States. It can be verified that there is a direct connection with border security and in the same time the biometric data application what defines dimension of security.

2. Appearance of biometric data in documents.

As a result of the research it can be stated that personal identification mechanism performed by biometric data, in accordance with the current technical development stage, resulted in the development of security elements of documents. The registry of biometric data and by the traditional, document-built security elements are not exists without by its own, as these identification procedures substitute each others. All the control mechanisms have its role and place to reach the required security level.

3. Personal identification check in the police work.

Based on the sources it can be stated that there is no such definition exists as police targeted personal identification, thus by analysing each element of the concept, concerning the requirements I separated the criminalistic targeted identification from the police targeted identification and I had defined the concept of the latter one.

By the document analysis it can be proved that the anatomy based identification is highly influenced by such negative facts from the part of the identifier and identified person and even the environmental effect having negative influence on the results. Cease of negative subjective facts can have a security increasing effect.

4. Application of biometric data in personal identification process.

By research of source materials it can be stated that the requirement system of biometric data in police activities had not been defined yet, thus I determined its

method and equipment specific aspects. I selected nine processes out of the biometric identification processes, which application should be considered in police activities and surveyed them in method-specific aspects.

By the analysis performed it can be verified that the recommendation of International Civil Aviation Organization (ICAO) and the statutory rule of EU concerning the application of biometric data are in accordance with the level of security needs to be reached.

#### 5. Practical application of biometric data.

As the result of the research it can be stated that the storage of biometric data for personal identification has only security increasing effect if the controlling authorities are able to use the data during the practical control. By analysis and evaluation of controlling mechanisms and by preparing the process of control it can be proved that the person performing control does not have to apply different mechanism concerning the identification out of fingerprints inside the documents or out of stored data.

Based on the procured equipments it can be stated that the aim to reach an intended security increasing effect is not in proper portion with the financial investment done so far.

### **CONCLUSIONS**

Throughout the analysis of the intention to create the area of freedom, security and justice I stated that only a common cooperation and intention for act can only be effective for its practical perform. The intention to act can be forced out, but the real added value would only be “added” if the Member States realise the security risk having effect for their own country and the EU as well, and define counter-act against it.

There are effects for the EU security from outside and inside dimensions. These dimensions are threatend by the illegal migration, which stopping is impossible because of global political, society and economical influences, thus only the management should be maintained and focused on.

The document analyses prove and support that one of the elements of the security creation is performing personal identification with certainty. It can be stated that there is already basis for identification in a criminalsitic sense, but police targeted identification is the beginning of a “new age” that has a direct effect on the document issuing, controlling mechanism and has an indirect effect on public and border security.

The EU intends to guarantee the security and the free movement of its citizens on the one hand by providing biometric passports and on the other hand to create the possibility of biometric identification for visa obligatory citizens as well. The conditions for controlling should be fit accordingly by the Member States.

During my research it is highlighted and proved that obligatory application of biometric data moved forward the practical implementation of passports having unified format and content and as after a three decade of planning the act had been taken.

To perform personal identification is the obligatory measure almost of all of the police activities, thus the content element of them are similar, no matter which professional branch performs, e.g. traffic control, public order or border checks. Out of this justified statement it can be concluded that all officers performing control should have the same skill and preparedness for personal identification check process. The training system of staff had been changed significantly in the past ten years, nowadays up-to date training materials and programs assure the level of requirements of present both in education and at everyday work. The skill for personal identification can be developed differently by every officer, thus the elimination of negative effects on the identification process should be intended. The solution for this can be the application of biometric data.

Not all kind of biometric data is suitable for police targeted identification check, because of different environmental usage and altered reaction time. All the personal identification based on biometric data has its role and place in the field of security. In order to produce the required security increasing effect the real financial and human resources should be considered and should choose the biometric identifiers accordingly. Based on survey performed it can be stated, that presently the facial image and fingerprint based identification processes are in accordance with the required aim. These processes give an immediate feedback for the controller person on the “match or no-match”, moreover can be used in differently lightened surroundings giving reliable results. In special cases like at airports the basic identification could be the iris recognition process. As a new police targeted identification process I specified that of finger-and palmvein net, what is applicable in all control points and in all controlling surroundings.

### **NEW SCIENTIFIC RESULTS**

During my research work of PhD dissertation, based on scientific document analysis and the survey of casual and effect relations I intend to specify the following new scientific results:



- 1) Concerning hypothesis No 1, I have proved that the contracts and programs creating area of freedom, security and justice regard the application of biometric data as acceptable in precise decision process of identification, contributing to the increase of security inside Schengen area, although the the security development at the moment is not in accordance with the required aim.
- 2) Concerning hypothesis No 2, I have verified that the issuing of passports and travel documents including obligatory security features and biometric data contributes to the statement of identity without doubts, by the special relation between the documents and its user.
- 3) In case of hypothesis No 3, I have justified through scientific analysis that the identification process by only anatomy features cannot consider secure, there is a need to apply such process, which guarantee to finish the negative effects of subjective facts, and is able to handle the negative effects of objective facts in the controlling mechanism.
- 4) Regarding hypothesis No 4, I have proved that the identification process by traditional anatomy features is completed with control by biometric data, but not without it totally. Security increasing effect has been arisen by the combination of traditional process and possibility control of biometric data. The claim of personal identification is independent from the citizenship, although regarding security risks the control mechanisms should use selectivity and differentiation as basic methods.
- 5) In case of hypotese No 5, I have demonstrated that inspite of different storage of biometric data the same identification check mechanisms should be performed. I traversed the initial hipotthesis of performing altered mechanism. I have justified that the financial investment into the control of biometric data is not in line with the level of security development.

### **PRACTICAL USAGE OF SCIENTIFIC RESULTS, RECOMMENDATIONS**

Meantime of elaboration of PhD dissertation I have defined more aims by which performing I intent to contribute that my statements shall be applicable in the field of training and technical development and even useful for the development of controlling mechanisms.

- 1) The security of Schengen area and the survey of biometric data identification could provide a suitable base for education and even for colleagues working on

implementation level to expand their general professional knowledge, moreover the knowledge of the citizens that the precise identification statement serves security.

- 2) I consider it necessary to develop content elements of personal identity and relevant documents, even the presentation of standard document issue and chronological development of biometric data. The analysis provides opportunity for a prognosis on a short, middle and longer timeframe on what kind of document issuing will be probable, combining with controlling mechanisms.
- 3) By presentation of significant time gap between obligatory document issuing and that of controlling possibilities, my dissertation could serve as a basis to recognize what kind of timeframe should be set to define a statutory norm and for its implementation, which needs technical and informatic developments as well.
- 4) Conclusions arising by analysis of effects of practical performance of personal identification based on biometric data could serve as a support for the elaboration of such activity and preparation plans which shall define tasks and timeframes for the entire control mechanisms system, including both personal and equipment requirements.
- 5) The progress charts of controls could contribute to the precise definition of required technical and informatic developments in relation to present situation to get information on the level of interfere.
- 6) By statements the system of in-depth document controls can put totally on new basis, what can improve the level of results and efficiency.

### **RECOMMENDATIONS FOR CONTINUATION OF RESEARCH**

In accordance with my doctoral dissertation I consider reasonable and timely to continue the following fields to be researched.

- 1) Improvement of security elements of personal identity and authority documents, and the alteration of technological and informatic requirements along with the influences on control technology.
- 2) What are the influences of changes occurred in the security elements of documents on the methods of perpetration of the covered public document counterfeit. What effect will be caused for the perpetration methods in counterfeit by the appearance of new security elements? What will be increased or strengthened? What security level can be stated on that the investments have no longer in accordance with the expected security increasing effect.

- 3) Survey of influences of application of biometric data on the data protection and civil rights. Concerning proportionality principle, when and what level can be used the biometric data in personal identification process? Whether performing rights can be done by biometric identification on a voluntary basis.
- 4) Examination of technical-specific aspects of police targeted biometric identifiers in addition of necessary equipment, informatic tools and networks needs for control mechanism.
- 5) Assessment of effects of biometric identifiers of police targeted application on the technology of control and modification need of control methods.

### **LIST OF PUBLICATIONS**

- 1) Reliable personal identification, the guarantee of safe border traffic control, (Border Police Studies ISSN: 1786-2345 2007., IV/ 3, - pp. 20-25)
- 2) Factors having effect on personal identification at the Border Guard (Hungarian Law Enforcement HU-ISSN: 1586-2895 /printed/, HU-ISSN 1787-050X /online/, 2007., VII./1-2, - pp. 151-157.)
- 3) The security increasing effect of biometric identification? (Police College, Law enforcement Booklets, ISSN 1585-1249, 2010/1. - pp. 11-16.)
- 4) Increase of Security in border traffic control (Border Police Studies HU ISSN 1786-2345 /printed, HU ISSN 2061-3997 /online/ 2010, VII/1. - pp. 97-105)
- 5) Security increasing effect of travel and personal identification documents containing biometric data on border and public security (National University of Public Service, Abstract Booklet 2012., ISBN: 978-963-89546-9-5, - pp. 15-20.)
- 6) Automatized border control system (Education, Training and Science Department, Ministry of Interior, Law Enforcement Scientific Review II/ 4, 2013., - pp. 21-35.)
- 7) Appearance of biometry in the service of freedom, security and justice (Education, Training and Science Department, Ministry of Interior, Law Enforcement Scientific Review II./4. szám, 2013., - pp. 4-20.)
- 8) Operation of integrated border management in Hungary (Police Basic and Professional Examination Council, Border police teaching material 2013., Chapter II, subchapter 2nd, - pp. 70-93.)
- 9) Biometric data in documents (www.biztonságpolitika.hu., 29 july 2013 - pp. 1-13., ISSN 2062-4379)
- 10) Theory and practice in personal identification in border traffic control

(Science Student Studies, 1<sup>st</sup> prize of XXVIII. Conference of National Science Students Studies, 10<sup>th</sup> Military Science Section, III Unit of Border police and Border defence 2007., /- p. 59/)

- 11) Co-author: Norbert Varga, Document knowledge- document forgery (University Book, 2006., issued by Police College /- pp. 130, 50-50%/)
- 12) Co-author: Attila Nagy, Title of research subject: Appearance of biometric data in police (borderpolice) work; title of study: Security increasing effects of biometric personal identification in border traffic control  
( 1<sup>st</sup> prize of scientific research call for employees of Ministry of Interior, Chairman: state secretary of administration, Head of Interior Scientific Council, 2006, Scientific Research, 2006. /- p. 65, 50-50%/)
- 13) Co-author: Otto Gruber - Dieter Vogel - Gerhard Hofmann - Rolf Huber: „Recommendation” on control of biometric passports and travel documents (in Hungarian, English, Russian, and German languages) (Secretariat of International Border Police Conference, 2007. /- p. 5/)
- 14) Electronic material (notes) in Russian language (Documents containing biometric elements; Replaces of persons, and intellectual forgery, The experience of EU in document protection; Classification of documents, structure and elements) ICMPD /International Centre for Migration Policy Development/ managed az AENEAS UKRAINE EU founded project on *“Improvement of fight against document counterfeit and increasing document security”* electronic material for Ukraine border guard staff 2008. Available at Khmelnyickij Military Academy and Ukraine Border Guard electronic internal network)
- 15) On the IT systems supporting the security of the border checks, 2009.  
(Secretariat of International Border Police Conference, 2009, Sent electronically to every participants of the XVII. Plenary session of International Border Police Conference /- pp. 4/)
- 16) Applying Biometric Data For Personal Identification ([www.biztonságpolitika.hu](http://www.biztonságpolitika.hu), 2013. augusztus., - pp. 1-11., ISSN 2062-4379)
- 17) Biometric data in personal identification (Pécs Border Guard Scientific Publications XIV., Pécs, 2013, - pp 7. ISSN 1589-1674)

**PROFESSIONAL –SCIENTIFIC CURRICULUM VITAE**Education:

1993-1997 Kossuth Lajos Military College

qualification: **border guard officer, engineer-teacher**

2002.-2003 Criminal Technical Training Centre of National Police Headquarters,

qualification: **document expert**

2004-2006 Zrínyi Miklós National Defence University

qualification: **border police and defence leader**

2007.- Zrínyi Miklós National Defence University, Military Science Doctoral School, Law Enforcement Science Department, Doctoral School (Phd)

Date obtaining Absolutorium: 05 September 2010

Languages: Russian advanced „C”, English basic „C”

Positions

<b>1997-2000</b>	Border Guard Directorate of Nyírbátor, Border traffic local office of Beregsurány, deputy head of local office;
<b>2000-2001</b>	Border Guard Directorate of Budapest, Border traffic Division, executive assistant, later senior executive assistant;
<b>2001-2003</b>	Border Guard Directorate of Budapest, Border traffic local office of Ferihegy-2, head of local office;
<b>2003-2005</b>	Police College, Border Police Department, border traffic, border security trainer;
<b>2005-2007</b>	<i>Natinal Headquarters of Border Guard, General Girectorate of Policing, Department of Border police, Division of Documentation, head of division;</i>
<b>2008-2010</b>	Hungarian National Police Headquarters, General Directorate of Policing, Department of Borderpolice, Division of Documentation; head of division;
<b>2010-</b>	Hungarian National Police Headquarters, General Directorate of Policing, Department of Borderpolice, Division of Border Police and Compensatory Measures, head of division;

Rewards and prizes:

Based on my effective and valuable work I had different levels of honourable mention 19 occasions.

Disciplinary and penal procedure:

There is no disciplinary and penal procedure initiated against me.

Scientific and Publication Activities:

In Hungarian language ten scientific publications, in English language four, in Russian language one electronical teaching material part, and one university book (50%), and one chapter in a teaching aid, and one e-learning training material.

The State Secretary of Administration of the Ministry of Interior; Head of Interior Scientific Council in 2006 a scientific research call had been made for employees of Ministry of Interior Scientific Research: Appearance of biometric data in police (border police) work; 1<sup>st</sup> prize; 2006 (50%).

XXVIII. Conference of National Science Students Studies, 10th Military Science Section, Unit III of Border police and border defence; 1<sup>st</sup> prize; 2007.

Professional leader of Working Group of Border traffic control of International Border Police Conference 2005 – 2012; task was to research and recommend integration and implementation of new control technologies into the system.

EU Founded Project: “Use of the Visa Information System (VIS) at external borders and by consular services in third countries - pilot project of the Central European Region” Hungary had been leading partner, with the participation of Border Guard of Poland and the Police of Slovenian Republic, I had been the member of the project management team in 2011-2012. I was responsible for monitoring project implementation and for decision making process.

Giving several lectures and elaboration of professional materials for national and international delegations in the field of technical requirements and control mechanisms of border police, documentation, document-controlling, border traffic control.

**Participation in more significant international projects:**

- Turkey, Ankara 16-22 September 2007  
Twinning project on harmonisation of EU law on border surveillance activities and on public document forgery
- Ukraine, Khmelnyckij Border Guard Academy 12-24 May 2008  
In EU founded project led by ICMPD in programme of AENEAS in UKRAINE “Improvement of fight against document counterfeit and increasing document security” titled project as training of experting mentors

- Ukraine, Szolyva 26 January -6 February 2009

In EU founded project led by ICMPD in programme of AENEAS in UKRAINE “Improvement of fight against document counterfeit and increasing document security” titled project as monitoring of training activities of experting mentors

**Budapest, 26. August 2013.**

**József Balla police Lieutenant Colonel**