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SPECIFICATION IN THE PRACTICE OF LAW ENFORCEMENT (APPLICATION OF BIOMETRY)

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Abstract: After the accession of Hungary to the Schengen region on 21 December 2007, the border control at internal borders was abolished. By the removal of this essential law enforcement measure some Member States experienced an internal security deficit that requires more intensive and efficient police and law enforcement activity and controls, well targeted and reliable identification methods. For the citizens of the European Union (hereinafter referred to as EU) the privilege of safe life has become a priority issue. In order to establish the area of "security, freedom and justice" it is indispensable to establish a person's identity conclusively and beyond any doubt. The application of biometric identification provides a quick, efficient and reliable method of identification for authorities excluding the possibility of errors arising from subjectivity. The only question is what methods and control mechanisms can guarantee the reliable execution of identification performed by police.

Keywords: security, biometry, identification, biometric identification for enforcement purposes

SECURITY AND FREEDOM (BASICS OF NATIONAL AND INTERNATIONAL APPLICATION OF BIOMETRY)

Abolition of borders, harmonisation of legislation, globalisation, integration, acceptance of individuals, surrender of cultural individuality on a certain level result in a number of legal and socio-political aspects. On the one hand, some adherence of national cultures to the grand European ideas, on the other hand shocking effects of cultural elements that must be handled on national level. Public security can be considered a variable of this kind. Open borders resulted not only in free movement of positive services and people respecting law between the member states of the European Union. Perpetrators to justice, criminal organisations and the crimes committed by them started to spread as well with the same intensity.[1][1] It is not entirely a coincidence that the objectives of the gradual abolition of checks at common borders of five countries were set out in Schengen Agreement signed on 14 June 1985 in Luxemburg.[2][2] After the

definition of these goals the other element influencing the national public safety and life of the EU citizens was the Treaty of Amsterdam on the creation of an "area of freedom, security and justice" [3] that was declared on 2 October 1997 and entered into force on 1 May 1999. As it was defined: "Freedom, security and justice are core values which constitute key components of the European model of society."[3][4]

Actual measures were defined by Tampere European Council on 15-16 October 1999 that reaffirmed its resolve to create an area of freedom, security and justice. Crime prevention, combating organised crime and the cooperation of police forces were emphasised.

The European Council of 5 November 2004 adopted the Hague Programme, where biometry was defined as the most objective form of identification and as possible means of the establishment of public safety.[5] The passports including biometric data – namely fingerprints - were introduced by the Member States in 2006. Following the harmonisation of legislation and the establishment of legal framework, the development of the second generation Schengen Information System (SIS) [4][6] and Eurodac System [5][7] was launched.

Joining this initiative Hungary – similar to other EU Member States – has been issuing e-passports with a photograph (first generation medium) since 29 August 2006. The passports issued since 28 June 2009 include the fingerprint of the owner as well (second generation).

Public safety is in direct cause-effect relationship with the efficiency of the police, which can be considered to be the crucial dimension of security. Quick, reliable and effective identification has a major importance in this structure.

An important issue is the way the identification of biometric data stored in data bases and documents is realised during enforcement controls.

1 Based on Unified Investigation Prosecution Court Statistics: regarding the number of committed crimes 1989. 185.000, 1998. 600.000, 2011. 432.000, 2012. 451.512 crimes were detected In: http://crimestat.b-m.hu/Default.aspx;

2Szabó J: Az Európai Ideától a Schengeni Egyezményen át, Magyarország teljes jogú schengeni csatlakozásáig vezető út - benne hazánk határrendészeti szerepvállalása, határrendészeti Tanulmányok V. Évfolyam 1. szám, 2008/1, Budapest, 2008. ISSN: 1786-2345, - p. 25.(Title in English: The Road from the Idea of Europe to Accession of Hungary to Schengen Zone – Role of Hungary, Border Protection Studies,)

3 Neither Maastricht Treaty nor the Treaty of Amsterdam defined the meaning of freedom, security and justice.

4 Rapcan, J-Rapcanova, M: The Context of Citizenship in the European Union and Freedom, Security and Justice, Pécsi Határőr Tudományos Közlemények XI, Pécs 2010, p. 1.

5 This program regards the application of biometry as a method to manage migration waves.

6 Regulation of the European Parliament and of the Council 1987/2006/EK (December 20, 2006.) on the establishment, operation and use of the second generation Schengen Information System (SISII) In: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:381:0004:0023:H U: PDF, downloaded 10.06.2012.

7 Regulation of the Council 2725/2000/EK (December 11, 2000) establishment of Eurodac for the comparison of fingerprints for the effective application of Dublin Convention, L316/L 22 Hague Programme: Strengthening Freedom, Security and Justice in the European Union (2005/C 53/01), Article 1.7.2.

What means are required to ensure the possibility of identification carried out at different control points (for instance public area, motorway parking area or roads) in a short time? During the completion of police controls the same question arises: is the person whose documents are examined identical with the person indicated in the documents shown by them? Exclusion of subjective factors from this process will lead to increased security. As it is believed, the application of identification for enforcement reasons based on biometric parameters will result in high objectivity, which will make it possible to eliminate the negative effects of subjective factors influencing the completion of identification carried out in a traditional way based on anatomic features.[8]

BIOMETRIC IDENTIFICATION

Biometric identification methods make it possible to identify the person itself who provides the sample, with the help of guarantee elements, such as live sample, it is possible to exclude even the possibility of deception. On the other hand, subjectivity of the person carrying out control that is considered to be another source of error can be practically eliminated.

Another major benefit is the decrease of control time, which can be measured in seconds in the case of biometric data even if high number of samples should be taken into account.

As for biometric identification systems, the technologies based on physiological features of the person are considered to be the most reliable option, for instance fingerprint recognition, iris scan, retinal scan, facial recognition[9]*, hand geometry, vein identification, voice recognition and DNA analysis.*

Biometric identification techniques using physiological characteristics are the following: fingerprint recognition, voice recognition, facial recognition in 2D, 3D, hand geometry, veins, iris recognition, retina scan and DNA. [6][10]

Similarly to other generally applied systems it is important to declare the aspects of operation security and reliability and establish a set of operation parameters. Basic elements are formulated in „Handbook of Biometrics" [7][11] *and publications of Applied Biometrics Institute – ABI [8]*[12]*, which enumerate eight biometric factors that can be used when assessing the suitability of the identification methods and tools. The eight principles of biometric identification are the following: 1. universality (generality), 2. uniqueness, 3. permanence, 4. availability, 5. productivity (performance), 6. acceptability, 7. circumvention, 8. measurability (collectability).*

1. *Universality of biometric data can be assured by two elements: on the one hand, every individual possesses a trait, and the percentage of probability that it passes into unauthorised hands is extremely low.*
2. *On the other hand this trait is unique and specific to the individual, and as such it can be related to an only person.*[13] *Reliability is well-established since this data cannot be lost, stolen or handed over.*
3. *It is indispensable that this data show permanence during different phases of an individual's life.*
4. *It is important that they are protected against attainment by a third party, they are safe so that they could be inalienable from the owner and it would be difficult to reproduce.*
5. *Two factors of the performance of the system is the speed and accuracy.*
6. *Acceptability means the positive attitude of the society towards the mass application of biometric identification.*
7. *Circumvention eliminates the successful manipulation of metric data by an unauthorised person.*
8. *Measurability declares that data taken and registered is accurate and exact and the measuring instruments are certified and verified.*

The issue of the reliability of the operation must be emphasised, and three indicators can characterise the systems from this point of view: [9][14]

1. *FAR (False Acceptance Rate): false acceptance rate shows the instance of a security system incorrectly identifying and verifying an unauthorised user.*
2. *FRR (False Rejection Rate): false rejection rate shows the instance of a security system rejecting an authorised user.*
3. *FTER (Failure To Enrol Rate): data entry error – the rate at which the attempts to sample input is unsuccessful. [10]*[15]

Based on the metrics described above FAR of some biometric system is the following: [11][16]

- ≡ *Voice recognition: 500 : 1*
- ≡ *Facial recognition: 2000 : 1*
- ≡ *Fingerprint recognition: 1 000 000 : 1*
- ≡ *Iris recognition: 10 000 000 : 1*
- ≡ *Retina scan: 10 000 000 : 1*

Besides classical elements other, practical elements are taken into consideration as well. For instance easy access to the sample: the unique pattern of the skin on a person's sole is suitable for individual identification, however, this biometric data will never serve as a basic element for an access system due to health and other application reasons.

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8 In the practice of the Hungarian Police biometric identification is not applied in every case, it can only supplement the traditional means of identification based on anatomical features. In case of doubt, identification based on biometric data can be performed if required.

9 This biometric identification system would serve as optimal and the most secure means during the entrance to the police object, movement between police units performing different service related tasks, information flow or sphere of activity of police forces with special covered tasks. However, due to the ontogenetic changes of users it weakens the principle of statics. The possible changes of facial proportions it includes the possibility of getting false results.

10 Kovács T: A biometrikus azonosítás alapjai:, Óbuda University Bánki Donát Faculty on Mechanical and Security Sciences Engineering Applied Biometrics Institute (ABI) Digital lecture notes 2014. (Title in English: Basics of Biometric Identification)

11 Jain-Flynn-Ross: Handbook of Biometrics Springer Science & Business Media, LLC. 2008.

12 Kovács T: A biometrikus azonosítás alapjai, Óbuda University Bánki Donát Faculty on Mechanical and Security Sciences Engineering Applied Biometrics Institute (ABI) Digital lecture notes 2014. (Title in English: Basics of Biometric Identification)

13 Disregard the least reliable behaviour based biometric identification, for instance analysis of signature sample or key presses, analysis of way of walking.

14 Nadort, A: The Hand Vein Pattern Used as a Biometric Feature. Vrije Universiteit , Amsterdam 2007.

15 Bunyita A: A ma és a holnap beléptető rendszereinek automatikus személyazonosító eljárásai biztonságtechnikai szempontból, Hadmérnök VI. / 1. pp. 24-25. In: http://hadmernok.hu/2011_1_bunyitai.pdf, Downloaded: 20.10.2014 (Title in English: Automatic Personal Identification Processes of Access Control System of Today and Tomorrow from Aspects of Security Technology),

16 Dr. Kovács T: A személyazonosítási módszerek általában , Digital Lecture Notes 2014., - p. 1-2., Óbuda University Bánki Donát Faculty on Mechanical and Security Sciences Engineering Applied Biometrics Institute (ABI) (Title in English: General Methods of Identification)

The primary element of applicability is the ability to produce quick reaction from the side of a population of any size. It means that it should perform the identification or negative recognition in a split second.

As for cost effectiveness, the launch of the operation requires higher costs compared to the traditional, token-based identification systems. On the other hand, when operating a token-based system, continuous replacement is required due to the movement of people, fluctuation, entrance cards and the depreciation of other equipment and as a result of this, the application of biometric identifiers will result in a more economical way of working after a while.

APPLICATION OF BIOMETRIC IDENTIFICATION IN THE FIELD OF LAW ENFORCEMENT

Special factors are to be taken in consideration in the course of the application of biometric identification in the field of law enforcement. There is a lack of fundamental literature in the topic, the area is developing its own methodology and application literature. Balla József police lieutenant colonel [12][17] has defined basic premises when introducing a unified system of requirements into the field of methods and means employed, which is considered to be a really thorough professional factor for the police.

A. *Method specific set of parameters - in the course of which it must be ensured that the identification is –*
   1. *Universal - applied for everybody*
   2. *Independent of the spot - it can be performed at different spots with the same efficiency, stable and mobile, it is reliable in road, air and railway circumstances.*
   3. *Independent of circumstances - it produces reliable results in different, extreme weather and temperature circumstances during different parts of the day*
   4. *Incorporated into regime measures - it can be fit into the control process*
   5. *It cannot be appropriated - performed via internal biometric identification*
   6. *Contact free - as for hygienic considerations, there is not a need for personal contact between the person and the instrument*
   7. *Time limit - it does not increase the basic control time significantly*
   8. *The result is categorical - possible only between two outputs: accept - refuse (GO-NO GO)*

B. *Equipment specific set of parameters - the equipment shall be able to perform the check on persons -*
   1. *Task-oriented structure - focus on the task to be solved, goal oriented, without applications*
   2. *Operational stability - operation should be reliable in extreme weather conditions and in the case of a large number of sample taking*
   3. *User-friendly - easy to use, it should not require specific knowledge from the user*

INTEGRATION OF THE BIOMETRY INTO BASIC POLICE TASKS

Public security is in immediate cause-effect relationship with the operational efficiency of the police, which is regarded a definitive factor of security. In order to provide this, quick, reliable and efficient identification has a crucial role.

Due to its geostrategic situation, Hungary has not only internal [13][18] but also external borders [14][19] functioning as a transit country for illegal migrants. There are certain views that consider illegal migration to be the major source of threat.[15][20] This approach emphasises the direct and significant responsibility of border control body in establishing the public security in member states as well, [16][21] making clear the relevance of the reliable identification.

It is acknowledged that managing migration is a real and significant law enforcement task and problem, however, the criminal threat arising from free movement of organised criminal structures must be considered to have the same significant importance. Open borders provide possibility not only for free flow of goods and services but also for criminal acts, crime and criminals. We must mention here terrorist threats, organised crime, escort networks, brothels, crime organisations specialised in making harm to the elderly, or simple "travelling crime" as well.

Work and border control activity of police bodies can be secure if it prevents and detects infringements and it prevents free movement of persons who may be a danger to the public security of the Union or Hungary. [17][22] Primary police measures in realising this is the control of documents that is quick and reliable identification of persons moving in the area. Apart from filtering out undesirable elements, free and undisturbed movement for the rest of EU citizens must be assured.

This is the reason why the identification methods of police play a crucial role in establishing the security of the area, Hungarian public security and internal security of Schengen region. The guarantee of security means the respect of free movement of individuals besides the reliable identification of persons by authorities.

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17 Balla J: Biometrikus adatok az azonosításban In: http://www.pecshor.hu/periodika/XIV/ballaj.pdf downloaded: 20.10. 2014. (Title in English: Applying Biometric Data for Personal Identification)

18 Member States of EU with common land borders (including lake or river borders as well), their airports for internal flights, sea, river or lake ports with regular ferry. Article of Regulation No 562/2006 EK of European Parliament and Council (15 March 2006.) establishing a Community Code on the rules governing the movement of persons across borders (Schengen Borders Code February 23, 2015)

19 Land borders of EU Member States including lake or river borders, sea borders, airports, river, lake or sea ports in case they are not internal borders. Procedures for refusing entry at the border: Regulation No 810/2009/EK [Official Journal L 243, 2009.9.15.]

20 Balla J: A biometrikus adatokat tartalmazó úti és személyazonosító okmányok biztonságnövelő hatása a határ- es közbiztonság alakulására Doktori (PhD) értekezés), National University of Public Service, Doctoral School on Military Sciences, 2013. (Title in English: Security Increasing Effects of Travel and Personal Identity Documents Containing Biometric Data on Border and Public Security; PhD Dissertation)

21 Dr. Ritecz Gy: A magyar Határőrség szerepe az európai biztonságban, Pécsi Határőr Tudományos Közlemények III., Pécs 2004. HU ISSN 1589-1674, - p. 1. (Title in English: The Role of Hungarian Immigration Office regarding European security)

22 "With the help of the control of border traffic on external Schengen borders and the performance of internal security strategy resulting from the cease of internal borders not only the security of Hungary but also the security of the whole Schengen area is provided" Balla J: A biometrikus adatokat tartalmazó úti- és személyazonosító okmányok biztonságnövelő hatása a határ- és közbiztonság alakulására Doktori (PhD) értekezés National University of Public Services Doctorial School on Military Sciences 2013. (Title in English: Security Increasing Effects of Travel and Personal Identity Documents Containing Biometric Data on Border and Public Security; PhD Dissertation)

SET OF CRITERIA FOR BIOMETRIC IDENTIFICATION FOR LAW ENFORCEMENT PURPOSES

As it has been made clear above, the application of biometric identification for law enforcement purposes has specific criteria. It must be universal, which means applicable for everybody, in different spots and control conditions, inserted into the control process of strict methodology of regime measures. Speed and reliability is a must, so it is essential to guarantee immediate results without loss of time. The identification needs to be performed via biometric identifier without contact. Only a part of biometric identifiers can meet the strict requirements from all respect. As for its application in public areas, the raison d'être of fingerprint recognition, facial recognition, vein identification or iris scan technique is unquestionable.

During the performance of tasks in public places, the policemen can control documents based on authorisation provided by national law [18][23] They can control the documents of a person whose identity shall be established in the interest of public security, crime prevention, or law enforcement purposes, in order to establish the lawfulness of their stay, during traffic police control procedures, and to protect the interests of natural, legal personalities or legal organisations. The law makes a difference between the citizens of Hungary and of other nationalities from the point of view of identity control. In the case of Hungarian citizens identity card, passport and driving licence of card format is acceptable as personal document for identification purposes [19][24]. The same Article stipulates that "fingerprinting or photographing of every person whose identity cannot be established with certainty on the basis of valid documents is allowed, their external corporal features can be recorded based on perception or measurement".[25]

Practical order of the identification of a person is realised primarily on the basis of anatomical properties. The given person is compared to his photograph included in his document used for identification, taking his age and other features into consideration. [20][26]. The efficiency of the method depends basically on the personal competencies of the police officer performing the action. Besides professional knowledge, external circumstances, weather, part of the day, the effects of environmental redundancy and time factor, the most crucial factor of the document control is the acting officer himself. The possible interference and distortion of subjectivity can influence efficiency, it is considered to be an element with the highest failure rate in the workflow. With the application of biometric identification process this subjectivity can be significantly decreased.

Public area activity is an emphasised part of police activity and due to special circumstances it demands extraordinary ability to react to the given situation in every case. Whether it is about patrolling or performing identification checks at control points (EÁ-p[27]), the factors influencing the activity must be taken into consideration every time.

It is believed that certain elements of the system need rethinking. Regarding the person performing identification, objective elements shall be completed with the degree of workload of the controller, which defines the quality, the length and accuracy of the control itself. It is also of utmost importance to examine the state of equipment used during the examination since it guarantees the quality and reliability. One of the primary objective elements regarding the person being controlled is the examination of clothing. The assessment of non-verbal signals must be continuous, and the extent of control and stress absorbing capacity must be taken into account since these factors can modify the control process in different ways. On the one hand it can be a warning sign so that the police officer shall deal with the person more thoroughly or on the contrary, the person controlled can suffer from neurodegenerative disease and he needs help to manage this control or stress situation.[28]

As the analysis of the results of previous police actions, regarding current social processes it is indispensable to carry out an analysis of the human composition of the areas involved, which has a significant influence on the result of police controls. [21][29]

The following table will summarise the factors influencing identification process supplemented with the elements listed above. It includes objective and subjective elements of police control performed in public area regarding the characteristics of the parties involved. As basic premises, the set of parameters collected by Balla József police lieutenant colonel was accepted and later supplemented with further important elements that influence identification. The workload of the officers performing controls is emphasized since it has a significant effect on their mental state and performance as well. As for the identified person, the evaluation of non-verbal signs, his tolerance to stress and to control, and physical state play an important role in the process. Regarding other factors, the human background of the place of control cannot be neglected as it has already been mentioned.

One of the basic elements of the formation relating to police service should be the support of practical activities. A number of initiatives and recommendation for supporting police forces performing on-the-spot identification checks have appeared so far including their provision with the necessary equipment. [22][30] On the basis of the current practice the

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23 Police Act No 1994. XXXIV. tv. 29. §.

24 This is a document issued by authority that authentically justifies the identity of citizen based on the Law No LXVI 1992 on the protection of individuals with regard to the record of personal data and address.

25 Police Act 1994. XXXIV. tv. 29.§.(4)

26 Lakatos G: Nyomozástan II. A kriminalisztika alapjai 1. Nemzeti Szakképzési és Felnőttképzési Intézet Budapest 2013. (Title in English: Methodology of Investigation II. Basics of Criminalistics)

27 Police activity of identification of persons at control points – grantor points.

28 Based on the experience gained during police controls in the area of Fejér County Police Department, when the police officer misidentified the person with mental disorder to be under the influence of alcohol – the person had limited ability to speak and walk due to a stroke – a Strokon Átesettek Érdekvédelmi Szervezete (Mutual Defence Organisation for people who had stroke) and Értelmi Sérültek Fejér Megyei Egyesülete (Fejér County Association for Mentally Disabled) worked out a leaflet including the most essential information about the disease and when there is a police control the patients can give it to the police officer in order to clarify the situation. Apart from this a training was held for police staff of Fejér County Police Department in 2013-14 in order to make them aware of the way the mentally handicapped people should be handled.

29 After the infamous case that is known as „Olaszliszka syndrome" many similar cases occurred. In: http://www.szon.hu/218jabb-soforveres-gyerekel252tes-utan-sajohidvegen/news-20080501-08022533 downloaded 03.03.2015.

30 Report on the research results carried out on modernization of IT system of police and border control activities in the framework of Check-net defined by the European Union. Based on a project accomplished in cooperation of ZMNE Faculty of Border Control and Council of Police Research Society, ZMNE 2006., Dr. László Zsigovits lieutenant colonel and Dr.Gábor Kovács lieutenant colonel

acting patrol performs primary control of checked person's data in the central data base via radio. Based on the information given by the patrol the data is checked in the electronic database by the contact person working in the centre. In the meantime personal and qualified data is transferred orally and openly, which raises concerns regarding data protection. This is the reason why it is justified to provide police units with mobile equipment that can eliminate these sources of failure. The application of mobile fingerprint and document reader has already been proposed. [23][31]

	OBJECTIVE ELEMENTS	SUBJECTIVE ELEMENTS
FACTORS ARISING FROM PERSONALITY OF CONTROLLER	Physical state (organs of sense)	experience-professional skill
	Place of service	Professional competencies
	Weather conditions	Ability to identify a person
	Parameters depending on the part of the day and season	Mental state
	Time spent on the control	Service time
	Workload	Experience in control activity
	State of instruments used for control	
FACTORS ARISING FROM THE PERSONALITY OF THE IDENTIFIED	Age related features	Behaviour
	Illnesses	Absorbing attention of controller
	Physical state	Degree of control tolerance Distracting techniques
	Non-verbal signs	(eg. Initiating conversation)
	Intention to cover face (eg. sunglasses, scarf)	
	Pretending sleeping	Degree of stress tolerance
	Clothing	Intensive discussion with others
FACTORS ARISING FROM OTHER CIRCUMSTANCES	Lighting of the control place	
	Brightness required for the control	
	Quality of the photo	
	Time elapsed since the photo was taken	
	Human background of the control place (composition of inhabitants)	
	Traffic conditions of the control place	
	Weather conditions at the time of control	

Figure 1. Factors influencing identification[32]

However, it has not been realized yet, the new measure to support objectivity was launched in October 2014. In order to support measures taken in public places the so called TIR-MOBIL system, a computer aided application was installed into patrol cars. This system makes it possible to realize screening of documents, cars or wanted persons. Although the system does not have fingerprint recognition or facial recognition functions, the opportunity of the introduction of this application is given. [24][33]

ACKNOWLEDGMENT

Biometric procedures can be inserted into the methodology of law enforcement control and they can assure identification conforming the level of the security risk. Evaluation of particular biometric identification methods based on law enforcement parameters is required to perform according to special internal measures adapting to special legislation and regime measures.

The scope of biometric identification methods that can be applied for enforcement purposes, namely for identification purposes, is much tighter than the full scope of available biometric means. The set of criteria for the application is defined not only by the group of general elements but also by law enforcement equipment and method specification described above. False Acceptance Rate (FAR) shall be highlighted among them since currently it is the main risk factor from the point of view of identification and security. In this case the system transfers unauthorised persons and such cases bring risk during police controls since wanted persons remain at large, runaway children cannot be found by authorities, cars or persons involved in criminal actions can slip through control points. Based on the above mentioned fact FAR value of particular control methods used in enforcement applications can be accepted only if they show low possibility of errors.

False Rejection Rate (FRR) cannot be tolerated either since an authorised person is rejected; in this case security risk does not appear, however, it means inconvenience for the controlled person. The clarification of the problem shall happen on the spot due to personality, legal and naturally financial and resources related issues.

The third element is data entry failure in the case of which exact and accurate measurements were carried out. According to the results it can be stated that the increased usage time of equipment results in a higher percentage of failure. As for fingerprints it can result in a FRR value of 60-80% based on 3500-piece measurement series. This percentage of failure cannot be tolerated in the field of police operations performed in public places. The total value of working hours for public places service of Fejér County Police Department reached 31 708 hours in 2013, with the number of 70.714 identified persons.[34] It means that in every case the identity of the persons was also checked. On country level about 1.500.000 people were affected.

The study of application of biometric identification methods and its compliance in law enforcement, more closely in police practice, is continuous. Based on four basic sets of criteria - reliability, evaluation time, permanence, circumvention – a comparative study [25][35] identifies three outstanding sets of identification measurement systems. At the same time, the most reliable biometric identification method, DNS identification shall be excluded from this set of measurements since it cannot meet the requirements of immediate feedback or evaluation. As a result of examinations and surveys performed it can be stated that if suitable conditions are provided, four different biometric identification methods seem to be applicable in the practice of police: facial recognition, fingerprint recognition, iris scan and vein identification.

31 Project DSVII-PA 2006 carried out by József Balla police lieutenant colonel: A biometrikus adatokat tartalmazó úti- és személyazonosító okmányok biztonságnövelő hatása a határ- és közbiztonság alakulására Doktori (PhD) értekezés. National University of Public Services Doctorial School on Military Sciences 2013. 69. (Title in English: Effects of Identification Documents Containing Biometric Data on the Status of Border and Public Security; PhD Dissertation)

32 Prepared by Krisztina Földesi

33 ORFK report of 2014/2 on Directive No 57/2013. (XII. 21.) on uniform way of operation for centers providing general police activities, duty of police and centers receiving distress calls.

34 FMRFK internal statistic data

35 Tajti B: A biometrikus ujjnyomat azonositás alkalmazásának új lehetőségei, Hadmérnök VII./ 1. , p 52. In: http://hadmernok.hu/2012_1_tajti.php , Downloaded: 29.06.2012. (Title in English: New Perspectives in Application of Biometric Fingerprint Identification)

Identification based on iris scan can be primarily applied, supported by a special software. The second method applicable in law enforcement is identification based on fingerprint recognition and vein identification. However, identification based on facial recognition is particularly suitable for executing special searches for missing persons or warrants. In these cases identification based on facial recognition is appropriate – in case of optimal arrangement of surveillance cameras – and it must be managed by human resources.

It is obvious that identification techniques via biometric data cannot be applied in every field of police work or in every control spot, and there are occasions when they cannot substitute the identification work based on traditional anatomic features. However, it is indispensable for the future generation of police officers who can make use of this reliable tool in the fulfilment of their tasks.

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