INFORMATION SYSTEMS USED IN IMMIGRATION CONTROL STRUCTURAL UNITS, ANALYSIS OF THEIR OPERATIONAL EFFECTIVENESS AND CAPABILITIES IN LATVIA

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Abstract. Research problem - during the implementation of various immigration control activities, the Immigration control structural units use the range of information systems that need to be improved. The aim of the research is to explore the information systems used in Immigration control structural units, their operational efficiency and capabilities as well as bring forward several suggestions in order to improve the use of information systems. Research tasks: 1) to analyse regulations related to information systems, their classification and legal framework; 2) to analyse the competence of using information systems in Immigration control structural units; 3) to explore the possibilities of using the information systems in Immigration control structural units for the purposes of planning duties; 4) to carry out SWOT analysis and make comparison of mobile information systems. Research methods: analysis of documents, monographic, logical – constructive, questionnaire, SWOT analysis. During the research, the legal and practical aspects in the use of information systems were clarified. Based on the aim and tasks set out for the research, the authors brings forward several possible solutions and suggestions on ways how to improve the information systems used by Immigration control structural units.

Keywords: information system, Immigration control, capacity of information systems, mobile information systems.

Introduction

Combat of illegal immigration is one of the priorities of the State border security. Significant differences in living standards and incomes, armed conflicts, instability of national facilities remain a decisive factor in attempts of illegal immigrants to reach the European Union across Russia and Belarus, choosing also Latvia as a transit country (direct pressure). Crossing the external borders of Latvia's neighbouring countries and other parts of the European Union, illegal immigrants move in the Schengen area and cross the territory of Latvia in the direction of the Scandinavia (indirect pressure). Since 2010, the growing direct pressure of regional illegal immigration has been observed in the Republic of Latvia. Organized crime-supported illegal immigrants, as well as individual or group-based illegal immigrants try to use Latvia as a transit country to reach Western Europe

or the Scandinavian countries. The challenge of immigration policy is to reduce the risks of illegal immigration. Studies show that they will increase significantly if the opportunities for legal migration are too limited and there is a high proportion of the underground economy and illegal employment in the country (8).

The use of information systems in Immigration control structural units is considered one of the most important immigration control mechanisms determining the topicality of the paper. Research problem during the implementation of various immigration control activities, the Immigration control structural units use the range of information systems that need to be improved. The aim of the research is to explore the information systems used in the Immigration control structural units, their operational efficiency and capabilities as well as bring forward several suggestions in order to improve use of the information systems. Research tasks: 1) to analyse the legal regulations related to the information systems, their classification and legal framework; 2) to analyse the competence of using information systems in the Immigration control structural units; 3) to explore the possibilities of using the information systems in Immigration control structural units for the purposes of planning duties; 4) to carry out SWOT analysis and make comparison of mobile information systems. analysis of documents, monographic, Research methods: constructive, questionnaire, SWOT analysis. Research novelty: the information systems used in Immigration control structural units, their operational efficiency have been explored; SWOT analyses of these systems, analysis of the effectiveness of information search capabilities, as well as their impact on immigration control have been carried out.

Nature and classification of information systems

According to the Law on Border Guard, the function of the State Border Guard is to "guarantee the inviolability of the State border and prevent illegal migration" (13). The State Border Guard has made a long-term and extensive work to improve the legal system in order to ensure the implementation of the migration policy in accordance with the European Union and the international standards (2). In order to ensure successful fulfilment of the functions and tasks entrusted to the State Border Guard to control compliance with the rules regarding entry, residence, departure and transit of foreigners in the territory of the Republic of Latvia as well as to carry out activities provided for in the Asylum Law within the scope of its competence the officials of the Immigration control structural units use the information systems specified in the regulatory enactments – one of the most important instruments for immigration control and detection of

violations. The border guards use various Latvian, European Union (EU), Schengen, and other international information systems for inspection of persons, documents and vehicles, as well as for obtaining and processing the information.

An information system is an integrated set of components for collecting, storing and processing data in order to provide information, knowledge, and a digital product. Companies and institutions rely on the information systems to manage their businesses (5). According to Kenneth C. Laudon and Jane Price Laudon, the information system is a set of procedures used to collect or obtain, process, store, and disseminate information to support decision-making and control. In most cases, the information systems are formal, computerized systems that have essential role in organizations. Although the information systems are computer based, it is important to note that any program based on old computer or old software is not an information system. Computers and related software are the technical basis, tools, and materials of modern information systems. The management information systems mainly assist to plan, control, and make decisions at the management level (11).

Aspects describing the information systems are the following: quality of information system, quality of information, use, user's responsibility, individual influence, and organizational impact (1). The information systems can be designed with various purpose: to perform state functions to ensure management systems); (state information (management information systems); to exchange information between the law enforcement authorities of the Member States at the moment of the detection of a person or object included in the Schengen Information System (SIRENE information system); to ensure operation of enterprise (institution) and preparation of reports (statistical information systems). The organizations increasingly rely on the information systems to promote development, information processing and to facilitate the management decision-making process (3). As use of the information systems is closely related to users, it is stipulated that user of the state information system may be a legal or natural person who has entered into an agreement with the state information system manager about data usage or who receives data on request from the state information system manager or in accordance with the procedures specified in regulatory enactments (14). On the other hand, the regulations of the Ministry of the Interior specify that the user is an official with a special service status or an employee who has received the user details (9).

Using the information systems, the officials of the Immigration control structural unit cooperate and contact the other institutions – the Office of Citizenship and Migration Affairs, the Information Centre, the Road

Traffic Safety Directorate, the Register of Enterprises, etc. – and process the necessary information about a foreigner. Appropriate computer hardware with relevant software and good Internet coverage are required to use the information systems. In order to create the information systems, collect, store, process, maintain, and use the necessary information, human resources qualified in the particular field are required. To check data on persons, documents, and vehicles, as well as to obtain and process information, the border guards use various state information systems administrated by the Information Centre of the Ministry of the Interior, the Office of Citizenship and Migration Affairs, the State Border Guard, and other state institutions. Administrator and holder of the information systems used by the Immigration control structural units is the same institution.

The management information systems can be classified according technological and organizational aspects. Classification according technological aspect includes the following:

- 1) development technologies management information system solutions developed by using web-based or local technologies;
- 2) development peculiarities ready-made solution is tailored to the needs of company; ready-made solution is implemented without any customization; a new solution that is completely developed according to company requirements (4).

Classification according the organizational aspect is determined by the following characteristics:

- 1) purpose of use the management information systems are used to manage company's business operations and resources;
- 2) enterprise size management information system solutions that are developed taking into account the size of organization, where the size is determined by the number of workplaces;
- 3) content management specialized management information system solutions describing a specific business process, and complex management information system solutions that support a set of business processes (4).

In Latvia, the State Information System Register is created for recording of the state information systems, in which data on the state information systems, their use, technical resources, managers, etc. are stored. At the moment, 171 information systems are registered in the state information system registry. Information systems of the following ministries make the Top 4: Ministry of the Interior (29), Ministry of Finance (27), Ministry of Justice (21), and Ministry of Health (20). (15)

The information systems are closely linked to the terms "personal data" and "personal data processing". Personal data is any information related to an identified or identifiable natural person ("data subject"); an identifiable natural person is a person that can be directly or indirectly identified, in particular by referring to an identifier, such as the name, surname, identification number, location data, online identifier of that person, one or more physical, physiological, genetic, mental, economic, cultural or social identity factors. Personal data processing is any action or set of actions carried out with or without automated means performed on personal data or personal data sets, such as collecting, registering, organizing, structuring, storing, adapting or modifying, recovering, viewing, using, disclosing by sending, distributing or otherwise making them available, matching or combining, limiting, erasing or destroying. (14) In the Directive 95/46 /EC, the term "controller" is used meaning a natural or legal person, a public authority, an agency or any other institution which, alone or jointly with others, determines the purposes and means of the processing of personal data (12).

On April 27, 2016, the Regulation (EU) 2016/679 of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data and on the free movement of such data. repealing Directive 95/46/EC (General Data Protection Regulation), was adopted. Currently, the European Union's regulation on personal data protection is not uniform and is regulated differently in each Member State; therefore, the General Data Protection Regulation provides for the establishment of uniform rules on the protection of personal data that are valid throughout the European Union. At present, the scope of personal data protection is regulated by the Personal Data Protection Law that will become invalid at the moment the Regulation will come in the force. In order to prevent illegal migration, the immigration control officers undertake immigration control and, in accordance with their competence, use the information systems in accordance with the principle of legality and legal grounds. The information systems are used to carry out the processing of the subject's personal data (profiling) in accordance with the safety rules developed by the information system administrator and, if necessary, inform the information system holder about the problems and deficiencies identified.

There is a legal basis for the establishment and operation of each information system used by the officials of the Immigration control structural units:

1. For National Visa Information System – the Immigration Law, the Cabinet Regulations No. 676 "Visa Regulations" of 30 August 2011, the

- Cabinet Regulations No. 159 "Local Border Traffic Permit Regulations" of 01 March 2011.
- 2. For the Invitation Register the Immigration Law, the Cabinet Regulations No. 564 "Regulations Regarding Residence Permit" of 21 June 2010, the Cabinet Regulations No. 522 "Procedures for Approval of Invitations and Regularisation of Requests" of 21 June 2010.
- 3. For Register of Returned Foreigners and Entry Bans the Cabinet Regulations No. 122 "Regulations on the Register of Returned Foreigners and Entry Bans" of 5 March 2013.
- 4. For the Automated Fingerprint Identification System Article 3, Paragraph 3 of the Immigration Law.
- 5. For *EURODAC* the Cabinet Regulations No. 296"Regarding Information System of Fingerprints of Asylum Seekers" of 17 May 2016.
- 6. For Register of Asylum Seekers the European Parliament and of the Council Regulations No. 862/2007 on the Community statistics on migration and international protection; the Asylum Law; the Cabinet Regulations No. 456 "Regulations Regarding the Register of Asylum Seekers" of 12 July 2016.
- 7. For Register of Residence Permit the Cabinet Regulations No. 564 "Regulations Regarding Residence Permit" of 21 June 2010.
- 8. For work permits the Immigration Law, the Cabinet Regulations No. 55 "Regulations Regarding Employment of Foreigners" of 28 January 2014;
- 9. For Population Register the Law on Residents' Register.
- 10. For Integrated Information System the Cabinet Regulations No. 429 "Regulations on Information to be Included in the Integrated Internal Information System for the Identification of the Location of a Person, Property or Document or for Identification of a Person or Unrecognized Human Body" of 07 June 2011, and others.
- 11. For the State Border Guard Electronic Information System (REIS) Article 3, Paragraph 3 of the Immigration Law, the Cabinet Regulations No. 692 "Amount and Terms of Use of Information to be Included in the State Border Guard Electronic Information System".
- 12. For the Border Protection Information System (RAIS) Section 9.1, Paragraph 1 of the Law on the State Border of the Republic of Latvia, the Cabinet Regulations No. 301 "Regulations on the Amount of Information, Storage Periods and Access Rights to be Included in the Border Protection Information System" of 4 June 2013.

Competence of the immigration control units using the information systems

The immigration control in a certain area of responsibility is performed by separate units of the Immigration Control and joint control units – the State Border Guard Territorial Administration unit that ensures border control at a certain border crossing point, as well as control of immigration in the defined area of immigration responsibility (6). This means that immigration control measures are also performed in the units where border checks are carried out. Each territorial administration of the State Border Guard has its own rules of procedure which also define the tasks and structure of the Immigration control units. When analysing the rules of procedure of territorial administrations, it can be concluded that the Immigration control structural units have the following main tasks: to control the observance of the conditions for entry, residence, transit and departure of foreigners, control of employment, inspections of fictitious marriages, detection of violations and detention of offenders in the designated area of responsibility; to carry out identification of foreigners and provision of the relevant expulsion procedures; to draft decisions on the compulsory expulsion of foreigners and their inclusion in the list of entry ban; to issue departure orders, organize and control their execution; to accept submissions from asylum seekers, to carry out initial activities related to the identification of asylum seekers, interviewing and other measures to ensure asylum, to control borderland and border zone (the Immigration control structural units of Vilaka, Ludza, and Daugavpils Boards), conduct tactical risk assessment and measures to prevent illegal migration within the designated area of responsibility; to keep records in administrative violation cases and make decisions in the cases of administrative violations, enter information into the information systems; to cancel and annul visas. The Immigration control structural units located on the internal border of Lithuania or Estonia (the Immigration control units of Daugavpils and Vilaka Boards) carry out additional tasks. The organization of services in the State Border Guard is determined by the internal laws and regulations of the Head of the State Border Guard. The Immigration control structural units organize service in compliance with the requirements of the laws and regulations and orders of the State Border Guard:

- In accordance with the schedule of execution of the official duties of the structural unit's border guards and according to the planned immigration control measures;
- In assignments if it is intended to carry out immigration control in the territory of the country outside the structural unit's placement.

Taking into account the number of officials in the immigration structural units, any official may carry out the assignment type "Senior official of immigration assignment" or remain in the structural unit, therefore the official of the State Border Guard, who performs immigration control, must have the following information systems that are essential in order to fully carry out checking of foreigners, vehicles and documents: IIIS - Profile 5, NVIS, PDP, VMIS subsystems: Residential Register, Invitation Register, Register of Work Permit, Register of Residence Permit, Register of Asylum Seekers, IĀIAR and Case Subsystem, REIS for Testing Mode, RAIS, CSDD. In addition to the designated national information systems, the Head of the relevant Immigration control unit may request the user's rights also to other state information systems if they are necessary for the performance of their official duties of the respective structural unit's border guard.

The information systems are used for the performance of various immigration control measures:

- 1) visa control NVIS, Central Visa Information System (hereinafter CVIS), Invitation Register, Common Migration Information System (hereinafter CMIS), Invitation Register (hereinafter IelR);
- 2) data control of persons crossing the border REIS "Reports", REIS "e-Mustangs";
- 3) control of risk persons' border crossing and stay REIS Report section "The Control System for the Stay of Foreigners";
- 4) control of the illegal entry and stay of foreigners: IĀIAR, AFIS.
- 5) asylum seekers Asylum Seeker Fingerprint Information System (EURODAC), Register of Asylum Seekers
- 6) personal search verification IIIS Person Search, REIS "Test Mode", Schengen Information System (hereinafter SIS), Interpol database (hereinafter Interpol DB);
- 7) verification of penalties (administrative violations) IIIS Persons who committed administrative violations (Penal Register), Accounting Categories; Ban control IIIS (Schengen), IĀIAR (national and Schengen), REIS "Test Mode";
- 8) control of foreigners and vehicles in immigration assignment (on the road, etc.) REIS "Test Mode", IIIS, European Vehicle and Driver Information Exchange System (EUCARIS), SIS, Interpol DB, NVIS, CVIS, VMIS, CSDD, IIIS Mobile Application (hereinafter Mob APP);
- 9) control of the residence permit of foreigners (with residence permits) VMIS Register of Residence Permit (hereinafter UAR), IelR, VMIS Residential Register (hereinafter IeR), Personal Data Browser (hereinafter the PDP), RAIS Foreigners Control;

- 10) employment control VMIS Register of Work Permit (DAR), UAR (information on the Right to Employment), NVIS (if a foreigner to whom the visa has been granted receives employment rights), the Company Register Information System (hereinafter URIS), Company Register Information Database (hereinafter Crediweb);
- 11) control of documents, their samples, counterfeits, invalid documents Register of Document Samples, IIIS Register of Invalid Documents (hereinafter NDR), iFADO;
- 12) evaluation of minors' rights to cross the border Information system for the support of minors.
- 13) search of goods IIIS Search of Goods;
- 14) check on information about arms Arms Register;
- 15) investigation of criminal offenses Persons who committed criminal offenses (hereinafter NNIP), Description of Person (hereinafter Contingent), Photographic Library, European Vehicle and Driver Information Exchange System (hereinafter referred to as EUCARIS).

It can be concluded that immigration control measures are very diverse and that an immigration control officer must focus on a large number of different information systems.

Importance of information systems in immigration placement planning

Taking into account the importance of immigration control as a compensatory measure, the activities of the State Border Guard within the Schengen area focus on preventive measures to detect and prevent illegal immigration. The immigration control measures also hinder organized crime activities, thus strengthening domestic security. The understanding and support of the public, state and local government institutions as well as non-governmental organizations should be further developed by the State Border Guard under the control of immigration. By improving the efficiency of immigration control, the State Border Guard needs to improve the use of the European Union-level and national information systems for immigration control activities within the country (10).

In order to ensure the effectiveness of immigration control, it is important to decide on the need for the type of control concerned (control in the information systems or immigration assignment) and make appropriate action planning, based on the information about the alleged violation (the information system or other information). Through the use of the information systems, the control of foreigners (the fact of a foreigner's departure/arrival, the validity of a document, the fulfilment of residence

conditions, etc.) shall be carried out, the analyse the results should be made and a decision on the improvement of control should be made.

In Latvia, the laws and regulations regulate immigration control after the arrival of a foreigner in Latvia. It must be admitted that it is not always possible to obtain complete information about the alleged offense of a foreigner in the information systems. The information systems can also provide information before entering (for example, an invitation, visa), but it does not guarantee that a foreigner will entry. The table shows the most important information about available information in the information systems before/after the entry of a foreigner, so that officials of the immigration control departments can purposefully plan assignments.

Table 1. Information available in the information systems before/after the entry of a foreigner in Latvia

(Compiled by the authors)

		Information available in the information systems before the entry of a foreigner in Latvia					Information available in the information systems after the entry of a foreigner in Latvia							
No.	Type of information	NVIS	CVIS	IelR	DAR	REIS**	NVIS	CVIS	IelR	DAR	REIS	UAR	IeR	
		1	2	3	4	5	6	7	8	9	10	11	12	
1.	Data on a foreigner (name, surname, nationality, date of birth, gender)	X	X	X	X	X	X	X	X	X	X	X	X	
2.	Place of birth	X	X	X	X		X	X	X	X		X	X	
3.	Personal code (if assigned)				X	X					X	X	X	
4.	Information on marital status, marriage, children under the age of 18, father and mother, death of a person (data on the person who received the residence permit)												X	
5.	Address	X	X	X			X	X	X				X	
6.	Photography	X	X	X*			X	X	X			X	X	
7.	E-mail address											X		
8.	Travel document of a foreigner (type; number; issuing country; date of issue; period of validity)	X	X			X	X	X			X	X	X	
9.	Visa applications and visas issued, refused, extended, annulled and cancelled	X	X				X	X						
10.	Information on the application (No., status, institution where submitted)	X	X				X	X						
11.	Purpose of the foreigner's entry and stay		X	X		X	X	X	X		X			

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^{*} Only for visas

SWOT analysis of the information systems

In order to evaluate the information systems, the most important Latvian information systems used for immigration control are selected. Performing the SWOT analysis of the information systems, one can

^{**} Only data from previous border crossing times

conclude that the main problems in using the information systems are the following:

- 1. In the IIS Subsystems of the Information Centre of the Ministry of the Interior:
 - 1.1. Persons who committed administrative violations (Penal Register):
 - 1.1.1. Inaccurate data about a person;
 - 1.1.2. Insufficient use of a percentage mark in the search criteria of a person (foreigner) that contributes to obtaining inaccurate data, and hence an entry;
 - 1.1.3. Unsuitability of search criteria for foreigners' search (there is no possibility to "Search the name in the surname's field and vice versa" and "Search also similar names").
 - 1.2.AFIS, EURODAC difficulties in taking a photo because many criteria (centring, contrast, exposure, face recognition, texture, resolution) should be taken into account.
- 2. In the OCMA information systems (NVIS, CVIS, PDP, VMIS):
 - 2.1.Inaccurate data about a person;
 - 2.2.No Classification "Address Book" (NVIS, CVIS) for the exact presentation of the place of residence;
 - 2.3.Insufficient information for quality control of foreigners;
 - 2.4.Inadequate search criteria for control of foreigners (PDP).
- 3. In the SBG information systems (REIS, RAIS):
 - 3.1.Inaccurate data about a person;
 - 3.2.Insufficient data synchronization, technical failure;
 - 3.3.No classification "Address Book" for the exact presentation of the place of residence;
 - 3.4.Incomplete information on cancelled residence rights, validity of residence permits, cancelled work permits (not specified precise name of an employer) (IeR).

In order to detect an offense by the officials of the immigration control structural units, it is necessary to obtain and verify information in Each information various information systems. system appropriate access (Internet address, user name, password). Connecting to each information system takes time. It would be useful to continue the merger of the state information systems, as stipulated in Article 6 (1) of the State Information Systems Law (Operating Principles of the State Information Systems) "Merging State Information Systems into an Integrated State Information System" as IIIS, MobApp, REIS "Test Mode", VMIS, providing one user name and password for the necessary information systems or, for example, inserting a chip into a service card that would replace the existence of many passwords, improve the control of immigration and provide more effective protection of information in the information systems.

The Concept of Integrated Management of the State Border of the Republic of Latvia for 2013-2018 discusses one of the challenges for integrated management of the State border of the Republic of Latvia: to achieve higher interoperability of the information systems and better management of information institutions. It must be admitted that this aspect is very important in improving the performance of the information systems. The information systems and their management should ensure the functioning of Integrated Border Management in an ever-increasing degree. Promoting the functionality of the information systems means the need to consider in a timely manner their common architecture, protection and non-interference with law-protected privacy at the same time. In order to improve the effectiveness of immigration control, the State Border Guard needs to improve the use of EU-level and national information systems for immigration control measures within the country. It is emphasized in the European Union's Internal Security Strategy, endorsed by the European Council on 25 March 2010 that, as with the fight against illegal immigration, the integrated border management also has a vital role in maintaining security and its mechanisms must be strengthened (7).

Conclusions and suggestions

The State information system is a structured set of information technologies and databases that provide the initiation, creation, compilation, accumulation, processing, use and destruction of information necessary for the performance of the state functions. The hypothesis of the research is confirmed. Theoretical and practical research of the information systems used in Immigration control structural units clearly show that, in order to increase the effectiveness of immigration control, the information systems require definite improvements.

The main problems in the use of the information systems that affect the effectiveness of immigration control are the following: there is no classification "Address Book" for the exact address of the person's place of residence in some systems; Register of Residence Permit and Register of Work Permit do not have a search criterion for residence permits/work permits issued in the region's territory; there are cases in REIS TSCS where an inaccurate or non-existent address is indicated at the time of crossing the border by a person in the risk group; REIS section "Reports" - insufficient data synchronization, technical failures; RAIS Foreigners Control - incomplete information on the cancellation of residence rights and validity of residence permits, on cancelled work permits (the exact name of

an employer is not specified); Persons who committed administrative violations (Penal Register) - the search criteria do not have the option "Search the name also in the surname's field and vice versa" and "Search for similar names".

During the research, the legal and practical aspects in the use of the information systems were clarified. Based on the aim and tasks set out for the research, the author brings forward several possible solutions and suggestions on ways how to improve the information systems used by Immigration control structural units.

In order to enhance the efficiency of immigration control and ensure the inclusion of an accurate foreigner's residence address in information systems, the State Border Guard must submit proposals to OCMA to amend the Cabinet Regulations No. 676 "Visa Regulations" of 30 August 2011, the Cabinet Regulations No. 552"Procedures for the Approval of Invitations and Drawing up of Written Requests" of 21 June 2010, and to the State Border Guard to ensure that in REIS in "the Risk Persons Questionnaire" the classification "Risk persons declared residence area/region at the time of border crossing" has to be added the list/catalogue of addresses.

In order to improve the control of foreigners having residence and work permits The State Border Guard must inform the OCMA about the gathering of incomplete information from the Population Register regarding the annulled rights of residence, residence permits` validity period, annulled work permits (indicating the exact name of the employer).

References

- 1. DeLONE, W.,H., McLEAN., E.,R., (2016). Information Systems Success: The Quest for the Dependent Variable. Retrieved March 26, 2018, from https://pdfs.semanticscholar.org/a041/45f1ca06c61f5985ab22a2346b788f343 392.pdf
- 2. GAVEIKA, A., (2014). Eiropas Savienības ārējās robežas tiesiskā reglamentācija. *Promocijas darbs.* Retrieved March 20, 2018, from https://dspace.lu.lv/dspace/bitstream/handle/7/5237/41515-Arturs_Gaveika_2014.pdf?
- 3. KANKANHALLI, A., TEO, H. H., TAN, B.C., WEI. K. (2003). An integrative study of information systems security effectiveness. *International Journal of Information Management* 23 (2003) Elsevier Science Ltd. p.139–154. Retrieved March 20, 2018, from
 - $http://130.18.86.27/faculty/warkentin/SecurityPapers/Robert/Others/Kankan \ halliEtAl2003IJIM23_ISSecEffectiveness.pdf$
- 4. PUKSTA. K., LAURIŅŠ. P. Vadības informācijas sistēmu pielietojums un aktualitāte mazo un vidējo uzņēmumu segmentā. Retrieved March 20, 2018, from http://aurora.turiba.lv/bti/Editor/Manuscript/Proceeding/LV_Puksta_Laurins.h tm

- 5. ZWASS, V., (2016.). Information system. Retrieved March 24, 2018, from https://www.britannica.com/topic/information-system
- 6. Dienesta organizācijas kārtība Valsts robežsardzes teritoriālo pārvalžu struktūrvienībās, kas veic robežkontroli un imigrācijas kontroli (2014., 04.04.). Valsts robežsardzes iekšējie noteikumi Nr.11.
- 7. Eiropas Savienība. (2010., mar.) Eiropas Savienības iekšējās drošības stratēģija. Retrieved March 20, 2018 http://www.consilium.europa.eu/media/30750/qc3010313lvc.pdf
- 8. CHUDINOVSKIKH O., (2011). Immigration trends in the CIS, International Migration of Population: Russia and the Contemporary World, Scientific Series of Lomonosov Moscow State University, Vol.25. Moscow, 2011, p. 45-56.
- 9. Informācijas sistēmu lietošanas noteikumi Iekšlietu ministrijā un tās padotībā esošajās iestādēs. (2007., 05.09.). Latvijas Republikas Iekšlietu ministrijas noteikumi Nr.49.
- 10. Latvijas Republikas valsts robežas integrētas pārvaldības koncepcija 2013.–2018. gadam (informatīvā daļa). (2013.18.12.). Ministru kabineta rīkojums Nr. 667.
- 11. Management information systems (MIS).(b.g.) Retrieved March 20, 2018, from http://www.referenceforbusiness.com/small/Mail-Op/Management-Information-Systems-MIS.html#b
- 12. Par fizisku personu aizsardzību attiecībā uz personas datu apstrādi un šādu datu brīvu apriti un ar ko atceļ Direktīvu 95/46/EK (Vispārīgā datu aizsardzības regula). (2016., 27. 04.). Eiropas Savienības Oficiālais Vēstnesis. Eiropas Parlamenta un Padomes regula (ES) 2016/679, Retrieved March 20, 2018 http://eur-lex.europa.eu/legal-content/LV/TXT/?uri=CELEX%3A32016R0679
- 13. Robežsardzes likums (1997., 27.11.). Latvijas Republikas likums. Retrieved March 20, 2018, from http://likumi.lv/doc.php?id=46228
- 14. Valsts informācijas sistēmu likums. (2002., 02.05.). LR likums. Retrieved March 20, 2018, from https://likumi.lv/doc.php?id=62324
- 15. Valsts informācijas sistēmu reģistrs. VISR reģistrēto informācijas sistēmu skaits. Retrieved March 20, 2018, from https://www.visr.eps.gov.lv/visr/default.aspx?action=2&type=8.