METAMORPHOSIS

`Foundation for sustainable ICT solutions`

IT Training of the Macedonian State Administration: Needs Assessment

We-Go
Enhancing Western Balkan
eGovernment Expertise

eGov Clustering Event
Skopje, Macedonia, September 2007

Information presented in this document are based on the draft findings from the survey and analyses conducted within the framework of the "Evaluation of the potential for good governance in Macedonia" project implemented by the Foundation Open Society Institute – Macedonia (FOSIM) in cooperation with the General Secretariat of the Government of Republic of Macedonia and Metamorphosis Foundation.

Metamorphosis Foundation provides synthesis and presentation of the main results in English within the framework of the WeGo Project.

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1. Intro

In order to identify the needs for IT training of the civil servants of the public administration in the Republic of Macedonia, the project "Evaluation of the potential for good governance in Macedonia" implemented by the Foundation Open Society Institute Macedonia in cooperation with the General Secretariat of the Government of the Republic of Macedonia conducted an IT training needs assessment for the civil servants in the public administration.

The research identified the needs for immediate training on separate IT skills which the civil servants often need to apply at their jobs in four content areas:
- Basic computer skills
- e-Government
- e-Democracy
- ICT skills for specific applications

The data will be used by decision makers in the General Secretariat and the Civil Servants Agency to establish the main priorities for IT training, plan the appropriate budgets and at the same time providing crucial assistance in the design of modules for the future training of the civil servants.

2. Key Draft Findings

The working group determined the following key findings, developing the recommendations for realization of the future activities in the area of IT training for the state administration. In depth-representation of some of the key findings is presented at the end of this document, using both graphical and numeric means (Appendix 1 and 2).

In addition to planning and provision of funds for these trainings, the trainings also need to be conducted according to an internationally acknowledged curriculum, enabling certification of all the civil servants relevant to those used on European level.

The survey established that significant number of civil servants needs training in basic computer skills, especially those over 41 and 51 years of age.

Civil servants with managerial and expert vocations require training for acquiring IT computer skills in the area of e-government. Civil servants of the executive branch of the government also need trainings the area of e-democracy and IT computer skills for specific applications.

Regular update of the data for conducted IT trainings for the civil servants in the register of civil servants owned by the Civil Servants Agency is recommended.

It is recommended that the research for the needs assessment for IT training of the civil servants in the executive authority is performed every 2 years and the percent of need for immediate training should be monitored.

3. Validity and Research Design

The assessment took place between February and May 2007, covering civil servants employed in 25 state institutions (ministries and organs within the ministries, departments of the Government of the Republic of Macedonia, administrative organizations and agencies and other legal entities) in 31 municipalities throughout the country.

The research covered 39% of the civil servants employed in the executive branch of the central government whose vocations are managerial, expert or expert-administrative.

Out of a total of 7.729 civil servants employed in the executive branch of the government, 3.042 respondents filled out the survey questionnaires, equally represented by male and female respondents, with proportional representation according to age, degree of education and years of working experience – comparable as the present structure of the civil servants in the executive authority according to the data owned by the Civil Servants Agency.

The percent of responses by the male and female civil servants was almost identical. More than half of the completed surveys come from civil servants employed in three institutions (Public Revenue Office, Ministry of Internal Affairs, State Authority for Geodetic Works), whereas two thirds of all the surveyed civil servants have more than 41 years of age. Half of the respondents have a vocation as chief of division, advisor or department manager.

In addition, during the design of the questionnaire, the working group invested a lot of effort in providing sensitivity to the issues of interoperability through use of brand-neutral and vendor-neutral terminology. In cases where explicit examples of applications were required, the team paid particular attention to providing balanced approach in regard to mentioning products by particular vendors and/or types of software, for instance proprietary and free/open source.

4. Necessary and Immediate Training Needs

During the work on this project, the experts paid particular attention to the relevance of the need for a specific IT skill to the position held by the civil servants in order to avoid clouding the results with requests for irrelevant trainings not actually needed or used as excuse to skip work. On the other end of the spectrum, by providing total anonymity, the survey ensured complete honesty by civil servants who need trainings for certain skills but keep quiet about it within their institutions for fear of being fired due to incompetence.

One of the goals of this research included identifying the civil servants who need immediate training in an appropriate IT skill, in order to point out at the bottlenecks in the state administration hindering its efficiency and effectiveness. In order to achieve this, the survey questionnaire sought correlations between the following parameters:
- Necessity for particular skill during a certain period (daily, weekly, monthly…)
- Current self-perceived skill level (familiar with a certain skill, capable of applying with assistance, unfamiliar, etc.)

Thus, the analysis introduced a "percent of need for immediate training" in order to assess the need for immediate training. Civil servants with a "need for immediate training" include those who have a need for a certain IT skill (have regular need for that IT skill at their job), and also need training for it (have no knowledge or apply the appropriate IT skill with someone's help).

For the purpose of this analysis, the "Percent of need for immediate training" has been defined in 5 different levels:

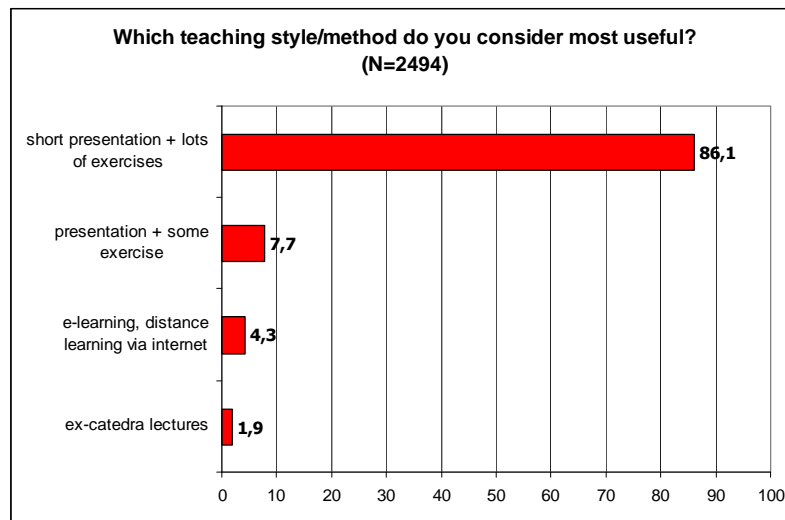| Level	Percentage
Very small percent of need for immediate training	0.0 - 4.9 %
Small percent of need for immediate training	5.0 – 9.9 %
Medium percent of need for immediate training	10.0-14.9 %
High percent of need for immediate training	15.0-19.9 %
Very high percent of need for immediate training	20+ %

The separate values of the "Percent of need for immediate training" for every IT skill - subject of this research are singly presented according to various demographic parameters

(gender, age, education, work experience) of the civil servants and by institutions are

5. Kinds of Training

provided at the end of this report.
According to the answers of the civil servants regarding the type of IT training that should be conducted for all the people that need immediate training for each of the appropriate IT skills from the four above mentioned content groups, it is obvious that most of the civil servants (86.1%) prefer a training which will be designed based on the principle "short presentation accompanied by many practical exercises."

Which teaching style/method do you consider most useful?
(N=2494)

- short presentation + lots of exercises: 86,1
- presentation + some exercise: 7,7
- e-learning, distance learning via internet: 4,3
- ex-catedra lectures: 1,9

Graph 1: Teaching method preference

Based on the draft results, the working groups recommended that the trainings should be designed in a manner that they would comprise short presentations, and most of the time should be dedicated to performing practical exercises of what is subject to the training.

The civil servants also state that they would like to attend specific IT training for acquiring an appropriate IT skill in some of the following languages: Macedonian, Albanian, English, Serbian, thus a great number of them say that they could successfully attend the training in two of the previously mentioned languages.

Languages suitable for trainings of civil servants

- Macedonian: 95,88% / 52,90%
- Albanian: 9,89% / 2,16%
- English: 23,41% / 0,65%
- Serbian: 34,84% / 0,17%

Legend:
- Can use this language
- Can use only this language
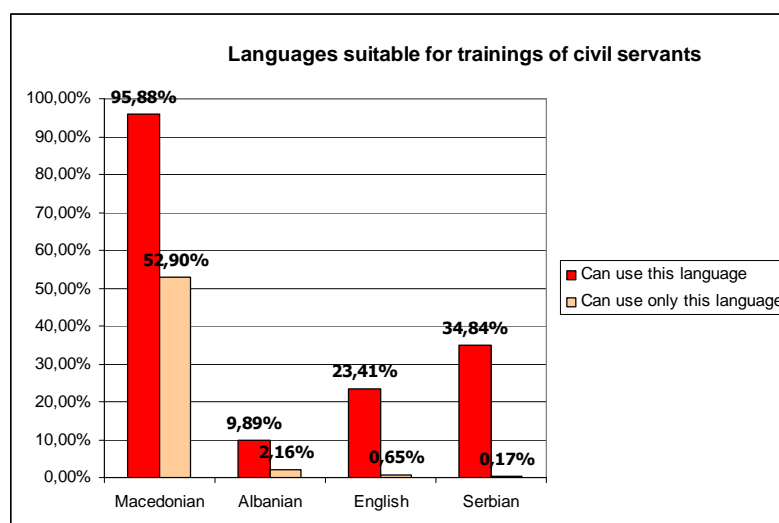
Graph 2: Languages suitable for trainings of civil servants

3

Based on the draft results, the working groups recommended that the training should be held in a language which suits the needs of the attendants the most.

6. Content and Scope of Needed Trainings, Training Delivery

In order to establish the need for immediate training on IT skills from each of the four major subject groups, the civil servants were required to answer these questions regarding every type of IT skill: 1) how often do they have the need for such skills at their jobs; and 2) what is their level of knowledge in the appropriate area.

The conclusions arising from the analysis of the obtained results, as well as the recommendations, are separated in five sections, one for each major subject group of IT skills and one part regarding summary (general) conclusions and recommendations.

6.1. Basic computer skills

Based on the obtained results, the research working group formulated recommendations on the kinds and size of trainings needed at this point in Macedonian public administration. In order to satisfy these needs, the funds of about 20 EUR per attendant per training module are required for training delivery, if local experts are used. The costs for curriculum development and training of trainers should be considered separately, depending on the scope and expertise needed for it.

Overview of training topics from the area of Basic Computer Skills	Civil servants needing this type of training	Minimum funds needed for training delivery
Basic IT–related terms: hardware, software, memory, networks, security, legal issues	1.082	21.640 EUR
Using a computer and working with files: using an OS, settings, desktop, windows, icons, files and directories/folders	1.090	21.800 EUR
Text processing: creating and formatting documents and templates, using tables, images and mail merge	1.244	24.880 EUR
Using spreadsheets: structure, functions and program possibilities for calculations, use of math. & logical formulas and functions, creating diagrams	1.430	28.600 EUR
Databases: understanding and using databases by creating, changing and merging tables, working with forms, requests and reports	1.484	29.680 EUR
Presentations: using modern presentation software, preparation of slides by incorporating text and graphical elements, as well as effects	585	11.700 EUR
Using the Internet: finding information on the web by using a web browser and using an e-mail	1.314	26.200 EUR

The working group also established that, due to the various platforms of IT system and software tools it is necessary to standardize the curricula and levels of knowledge of the civil servants for the separate basic IT skills. For this purpose, an internationally acknowledged and recognizable curriculum should be introduced, as well as certification of the civil servants for the appropriate IT skill.

The funds needed for introduction of nation-wide certification scheme start from about 30 EUR per civil servant, with an estimated cost of 231.870 EUR for all civil servants in the executive branch covered by the survey.

6.2. e-Government

So far within the bodies of the executive branch of the Government of Republic of Macedonia, only the civil servants with managerial and expert vocations have been dealing with issues related to the creation of IT policies, strategic and action plans for development and implementation of solutions in the area of e-government in the. In order to address the needs of the moment, the working group recommended that the trainings for acquiring IT skills related to the issues of e-government stated in this subject group should be planned and organized only for the civil servants with managerial and expert vocations.

Graph 3: Two thirds (2/3) of civil servants have no knowledge regarding the legal framework on ICT

In order to satisfy these needs, the funds of about 40 EUR per attendant per training module are required for training delivery, if local experts are used. The costs for curriculum development and training of trainers should be considered separately, depending on the scope and expertise needed for it.
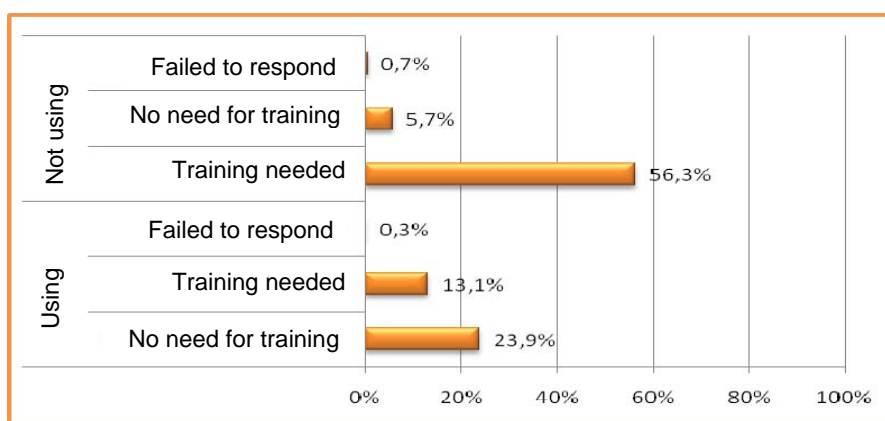
Overview of training topics from the area of e-Government	Civil servants needing this type of training	Minimum funds needed for training delivery
Legal framework/regulation related to ICT	675	27.000 EUR
Development of applied ICT policies: standards, security, privacy, access to public data etc.	580	23.200 EUR
The role of ICT in the public sector and coordination	600	24.000 EUR
ICT strategic planning	355	14.200 EUR
Principles and project cycle management and revision of projects for e-governance in the public sector	324	12.960 EUR
ICT budgeting	209	8.360 EUR
Main projects and applications in the area of ICT in the public sector	296	11.840 EUR
Cooperation between organizations and institutions: exchange of data between different registers	738	29.520 EUR
M-governance: using mobile technologies for e-governance	470	18.800 EUR

6.3. e-Democracy

In order to satisfy the needs for e-Democracy skills, the funds of about 40 EUR per attendant per training module are required for training delivery, if local experts are used. The costs for curriculum development and training of trainers should be considered separately, depending on the scope and expertise needed for it.

Overview of training topics from the area of e-Democracy	Civil servants needing this type of training	Minimum funds needed for training delivery
Basic principles of e-democracy: transparency, citizen participation, e-voting	765	30.600 EUR
E-citizens, ICT – services: principles and practical examples	719	28.760 EUR

6.4. ICT skills for specific applications

When addressing the needs for training for specific e-government applications, the funds of about 40 EUR per attendant per training module are required for training delivery, if local experts are used. The costs for curriculum development and training of trainers should be considered separately, depending on the scope and expertise needed for it.

Overview of training topics from the area of ICT skills for specific applications	Civil servants needing this type of training	Minimum funds needed for training delivery
uslugi.gov.mk	997	39.880 EUR
e-procurements	410	16.400 EUR

An immediate need has been established for training on other specific applications starting from "Project management," and "Accounting programs," to "Oracle," and "Corel" through "Insight in electronic classifications and nomenclatures," "Financial administration system," "Tax information system," and CAD application software (Microstation and AutoCad).

Considering that these skills might be needed by smaller number of specialized civil servants, the working group recommended design and implementation of procedures procedure in all institutions of the executive branch of the Government for submission of a request for immediate and other IT training.

6.5. Need for Continuous Needs Assessment

Based on the draft results the working group recommended conducting regular update of the data regarding the implemented IT trainings for the civil servants in the register of civil servants owned by the Civil Servants Agency.

It also recommended that the research for the needs assessment for IT training of the civil servants in the executive authority is performed every 2 years and that the percent of need for immediate training is monitored.

Appendices

Appendix 1. Need for Immediate Training by Various Demographic Parameters (in %)

| | Very small percent | | | Small percent | | | Medium percent | | | High percent | | | Very high percent |

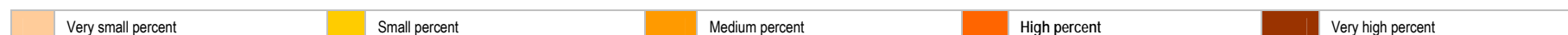| Parameter	1. Basic IT-related terms	2. Using a computer and working with files	3. Text processing	4. Tabular calculations	5. Databases	6. Presentations	7. Using the internet	AVERAGE – Basic computer skills	1. Legal framework (regulation) related to ICT	2. Development of applied ICT policies	3. The role of ICT in the public sector and coordination	4. ICT strategic planning	5. Principles for project cycle management and revision of projects for e-governance in the public sector	6. ICT budgeting	7. Main projects and applications from the area of ICT in the public sector	8. Cooperation between organizations and institutions: exchange of data between different registers	9. M-governance (using mobile technologies for e-governance)	AVERAGE – e-government	1. Basic principles of e-democracy: transparency, citizen participation, e-voting	2. E-citizens, ICT – services: principles and practical examples	AVERAGE – e-democracy	1. uslugi.gov.mk	2. e-procurements	AVERAGE – Specific applications	TOTAL AVERAGE
Gender																									
Female	11,6	12,1	14,4	17,4	17,9	7,8	16,1	13,9	13,0	10,9	12,4	7,5	5,0	3,8	6,0	15,8	7,9	9,1	10,8	9,0	9,9	13,4	4,4	8,9	10,5
Male	16,5	16,2	17,8	19,6	20,4	14,5	17,9	17,6	13,1	12,1	13,2	8,6	8,3	6,1	6,4	14,7	10,3	10,3	9,0	9,7	9,4	12,3	6,3	9,3	11,6
Age groups (years)																									
18-30	5,3	3,4	4,1	9,4	16,7	8,5	4,6	7,4	12,0	10,5	8,1	7,0	6,7	4,0	5,9	11,5	5,8	8,0	7,5	6,0	6,7	12,8	4,4	8,6	7,7
31-40	9,1	8,6	9,1	14,9	17,3	10,0	13,2	11,7	9,2	8,4	10,3	3,4	4,7	4,3	2,9	12,6	7,3	7,0	10,9	9,7	10,3	10,0	4,6	7,3	9,1
41-50	14,4	15,1	17,4	20,9	18,9	10,3	21,1	16,9	13,2	11,8	14,0	8,4	4,9	3,9	5,9	17,0	9,7	9,9	9,9	9,6	9,8	12,1	5,5	8,8	11,3
50+	19,4	19,7	23,0	21,6	21,4	13,2	20,3	19,8	15,5	13,4	15,4	10,5	9,3	6,7	8,7	17,2	10,9	12,0	10,9	10,8	10,8	15,8	5,8	10,8	13,3
Education level																									
PhD (Dr.)	0,0	7,7	7,7	18,2	23,1	15,4	15,4	12,5	46,2	16,7	36,4	8,3	18,2	0,0	9,1	54,5	0,0	21,0	9,1	18,2	13,6	20,0	9,1	14,5	15,4
MA	2,7	1,3	2,6	3,9	15,1	7,8	6,6	5,7	7,2	7,4	7,6	5,8	7,6	7,2	6,2	20,0	11,1	8,9	10,8	13,8	12,3	9,1	7,7	8,4	8,8
BA	13,3	13,0	14,1	19,9	23,8	15,6	18,4	16,9	17,5	15,6	16,1	9,3	8,3	5,2	7,3	18,4	12,4	12,2	12,2	11,4	11,8	15,0	5,9	10,5	12,8
TYUS	19,2	18,6	21,0	21,6	17,1	8,9	17,8	17,7	7,7	7,1	9,7	5,1	4,8	3,5	4,4	10,1	5,7	6,5	7,3	6,5	6,9	9,7	4,0	6,8	9,5
HSE	13,8	15,1	18,1	17,1	14,5	6,3	16,1	14,4	8,7	7,6	9,5	7,3	4,4	4,6	5,2	11,8	5,5	7,2	7,6	7,1	7,4	11,7	4,5	8,1	9,3
Work Experience (years of service)																									
1	3,3	2,0	4,3	7,4	17,0	12,5	5,0	7,4	14,2	13,7	9,1	7,5	7,2	4,2	6,0	10,7	5,9	8,7	8,2	5,2	6,7	12,9	5,2	9,1	8,0
5	9,0	7,4	8,1	13,4	17,2	8,0	9,6	10,4	10,1	7,4	10,1	6,8	6,9	5,2	5,2	12,2	9,4	8,2	10,0	9,3	9,6	12,4	4,8	8,6	9,2
10	8,2	8,6	10,9	17,6	19,6	11,1	14,5	12,9	11,4	11,7	10,3	7,1	6,2	5,6	4,6	16,3	10,9	9,3	8,8	10,9	9,9	9,7	7,2	8,5	10,1
15	17,1	16,6	14,4	22,0	19,3	8,9	25,1	17,6	9,7	10,7	11,5	7,2	4,6	4,6	4,2	16,0	7,4	8,4	11,0	6,7	8,9	10,0	4,6	7,3	10,6
20	15,1	16,1	19,6	19,3	21,0	12,2	19,6	17,6	13,2	10,5	14,2	6,8	5,2	3,0	5,2	16,9	7,2	9,1	10,0	10,5	10,3	15,0	4,4	9,7	11,7
25	17,2	17,8	22,6	23,7	18,8	11,2	21,6	19,0	13,3	11,8	16,0	8,9	6,9	5,3	7,8	18,7	10,1	11,0	8,6	11,8	10,2	14,9	5,6	10,2	12,6
30+	18,1	19,8	21,5	20,1	20,3	13,4	19,5	18,9	15,2	12,6	13,3	9,3	8,6	5,8	8,5	15,1	10,6	11,0	11,5	9,3	10,4	14,0	6,4	10,2	12,6

Appendix 2. Need for Immediate Training by Vocation

Legend: Very small percent | Small percent | Medium percent | High percent | Very high percent

Vocation	1. Basic IT-related terms	2. Using a computer and working with files	3. Text processing	4. Tabular calculations	5. Databases	6. Presentations	7. Using the internet	AVERAGE – Basic computer skills	1. Legal framework (regulation) related to ICT	2. Development of applied ICT policies	3. The role of ICT in the public sector and coordination	4. ICT strategic planning	5. Principles for project cycle management and revision of projects for e-governance in the public sector	6. ICT budgeting	7. Main projects and applications from the area of ICT in the public sector	8. Cooperation between organizations and institutions: exchange of data between different registers	9. M-governance (using mobile technologies for e-governance)	AVERAGE – e-government	1. Basic principles of e-democracy: transparency, citizen participation, e-voting	2. E-citizens, ICT – services: principles and practical examples	AVERAGE – e-democracy	1. uslugi.gov.mk	2. e-procurements	AVERAGE – Specific applications	TOTAL AVERAGE
State counsellor	10,5	8,1	8,1	19,4	24,3	8,6	11,1	12,9	20,6	21,2	12,9	9,7	16,1	10,3	10,3	30,3	15,2	16,3	16,1	9,7	12,9	14,3	6,3	10,3	13,1
Chief of division	8,6	8,6	8,6	14,0	26,8	15,5	14,5	13,8	18,5	16,7	17,3	1,9	11,5	7,7	9,8	26,4	8,3	13,1	11,5	11,5	11,5	18,4	6,1	12,2	12,7
Assistant chief of division	12,2	16,0	9,6	9,6	9,8	5,9	13,7	11,0	11,6	11,1	9,3	0,0	2,6	2,4	0,0	10,3	2,6	5,5	10,0	7,5	8,8	7,5	0,0	3,8	7,3
Chief of department	12,1	14,3	14,3	23,6	25,4	16,0	20,4	18,0	18,9	15,1	15,3	8,1	8,3	2,9	5,8	19,0	13,2	11,8	14,6	11,4	13,0	11,9	5,8	8,9	12,9
Counsellor	16,1	15,9	17,3	21,0	25,2	17,0	24,4	19,5	18,2	14,4	16,8	12,6	8,1	5,2	7,3	20,6	15,3	13,2	12,7	14,6	13,7	15,7	6,5	11,1	14,4
Senior associate	18,5	11,5	14,9	18,3	21,4	10,4	14,9	15,7	8,9	13,2	22,4	6,5	5,4	6,8	8,2	22,7	11,4	11,7	9,5	15,5	12,5	21,1	5,5	13,3	13,3
Associate	12,0	12,7	17,7	19,2	18,6	17,6	14,2	16,0	20,2	18,4	15,2	9,2	8,2	8,5	10,5	18,8	12,0	13,4	14,9	9,4	12,1	16,5	10,5	13,5	13,8
Junior associate	3,7	0,9	3,2	7,9	17,7	10,8	4,2	6,9	14,8	12,6	10,0	7,4	8,1	5,1	8,5	11,7	6,4	9,4	9,0	5,8	7,4	12,6	5,3	8,9	8,2
Senior officer	19,7	23,0	25,0	23,9	17,6	4,0	22,4	19,4	5,3	6,3	7,5	6,4	4,4	3,8	4,9	6,5	3,8	5,4	4,3	5,9	5,1	6,5	2,2	4,3	8,6
Officer	6,1	7,1	10,7	8,0	6,5	3,5	9,3	7,3	2,6	2,6	2,2	2,7	1,7	1,7	1,1	4,4	1,1	2,2	4,0	2,8	3,4	6,1	2,2	4,2	4,3
Junior officer	8,2	8,3	9,1	11,4	14,5	6,0	9,5	9,6	9,5	9,6	11,7	6,3	5,5	1,9	1,8	12,7	4,4	7,0	8,8	5,5	7,1	19,3	2,8	11,0	8,7
Independent officer	18,6	19,0	21,9	22,4	18,2	9,7	19,1	18,4	11,9	10,0	13,6	9,1	6,0	6,2	6,9	15,5	8,7	9,8	9,8	9,4	9,6	12,5	6,5	9,5	11,8

Appendix 3. Need for immediate training by institutions (in %)

Legend: Very small percent | Small percent | Medium percent | High percent | Very high percent

Institution	1. Basic IT-related terms	2. Using a computer and working with files	3. Text processing	4. Tabular calculations	5. Databases	6. Presentations	7. Using the internet	AVERAGE – Basic computer skills	1. Legal framework (regulation) related to ICT	2. Development of applied ICT policies	3. The role of ICT in the public sector and coordination	4. ICT strategic planning	5. Principles for project cycle management and revision of projects for e-governance in the public sector	6. ICT budgeting	7. Main projects and applications from the area of ICT in the public sector	8. Cooperation between organizations and institutions: exchange of data between different registers	9. M-governance (using mobile technologies for e-governance)	AVERAGE – e-government	1. Basic principles of e-democracy: transparency, citizen participation, e-voting	2. E-citizens, ICT – services: principles and practical examples	AVERAGE – e-democracy	1. uslugi.gov.mk	2. e-procurements	AVERAGE – Specific applications	TOTAL AVERAGE
CSA	4,2	2,0	0,0	8,3	8,5	6,3	2,1	4,5	4,1	6,3	6,3	4,3	4,3	6,4	4,2	8,3	8,3	5,8	10,6	8,5	9,6	2,1	4,3	3,2	5,8
SARM	50,4	48,5	41,7	45,8	51,2	16,9	49,2	43,4	15,8	14,0	77,8	1,9	22,2	0,0	7,7	81,5	0,0	24,5	12,0	82,0	47,0	96,3	3,8	50,1	41,3
GS	0,0	0,0	0,0	11,4	17,6	8,8	2,9	5,8	6,5	6,5	0,0	11,5	7,4	10,3	14,8	13,8	16,7	9,7	7,7	12,0	9,8	9,7	10,3	10,0	8,8
SAGW	17,2	20,1	22,4	30,8	11,7	2,9	34,7	20,0	0,4	0,4	0,4	0,0	0,4	0,0	0,0	0,0	0,0	0,2	0,4	0,4	0,4	0,4	0,0	0,2	5,2
DPDP	0,0	0,0	0,0	7,7	7,7	7,7	0,0	3,3	41,7	38,5	30,8	30,8	0,0	0,0	7,7	0,0	15,4	18,3	23,1	7,7	15,4	30,8	38,5	34,6	17,9
SSO	4,6	4,6	3,1	5,1	10,8	4,1	7,1	5,6	5,2	5,2	5,7	4,0	0,6	0,0	2,3	2,9	4,1	3,3	5,2	3,5	4,4	5,1	1,1	3,1	4,1
PRD	40,6	38,3	33,3	44,0	42,9	35,2	47,7	40,3	34,8	28,6	37,9	25,0	21,2	12,5	8,7	40,7	38,8	27,6	4,2	22,0	13,1	36,0	18,8	27,4	27,1
MI	8,3	7,4	9,6	8,6	10,6	6,4	6,9	8,2	6,9	7,5	6,8	6,5	3,7	4,2	3,3	7,1	3,3	5,5	5,0	3,4	4,2	7,3	4,6	6,0	6,0
ME	1,9	4,8	8,1	15,0	20,6	11,1	6,5	9,7	7,1	6,5	8,3	9,6	11,8	1,5	6,0	11,6	7,5	7,8	15,2	2,9	9,0	9,7	1,5	5,6	8,0
MEPP	3,4	3,4	5,2	10,7	17,9	16,1	10,3	9,6	5,6	7,5	11,1	7,4	9,3	9,3	13,0	17,0	9,3	9,9	29,6	9,4	19,5	18,5	13,7	16,1	13,8
MH	21,9	23,4	24,6	24,6	24,6	16,4	28,1	23,4	33,3	25,0	28,1	16,1	9,1	10,7	11,3	31,0	23,2	20,9	15,8	14,0	14,9	17,9	10,3	14,1	18,3
MAFWE	18,3	18,7	16,5	17,8	31,4	15,4	26,4	20,6	27,1	24,1	28,0	18,5	11,8	17,0	5,7	33,3	29,4	21,7	28,8	26,9	27,9	30,8	12,0	21,4	22,9
MK	8,8	5,0	8,6	6,3	11,3	16,3	8,6	9,3	25,4	27,1	20,0	8,3	7,4	5,9	8,7	31,4	10,0	16,0	20,0	13,2	16,6	12,7	7,4	10,0	13,0
MLSG	13,3	0,0	0,0	21,4	40,0	7,7	0,0	11,8	0,0	26,7	13,3	6,7	13,3	6,7	7,1	14,3	14,3	11,4	26,7	7,1	16,9	6,7	0,0	3,3	10,8
MFA	0,0	3,4	3,6	0,0	3,6	0,0	6,9	2,5	10,3	6,9	0,0	3,7	6,9	6,9	6,9	10,7	3,7	6,2	0,0	3,7	1,9	3,4	0,0	1,7	3,1
MD	5,9	0,0	0,0	5,6	5,6	22,2	0,0	5,6	6,7	13,3	15,4	12,5	6,7	6,3	7,1	13,3	0,0	9,0	0,0	0,0	0,0	12,5	6,3	9,4	6,0
MES	5,7	4,2	8,3	8,3	11,4	12,9	11,6	8,9	14,5	9,1	7,4	4,3	7,4	2,9	7,4	10,0	5,7	7,6	17,4	5,9	11,6	5,8	2,9	4,4	8,1
MTC	0,0	0,0	0,0	14,3	7,1	7,1	7,1	5,1	7,1	7,1	7,1	0,0	0,0	0,0	0,0	15,4	0,0	4,1	7,7	9,1	8,4	7,7	7,7	7,7	6,3
MLSP	3,9	1,3	8,2	7,8	13,0	6,6	5,1	6,5	31,4	16,7	20,5	14,3	7,4	6,3	15,2	22,5	15,6	16,7	9,0	10,6	9,8	9,7	3,0	6,4	9,8
MF	3,6	1,8	3,6	21,4	37,5	38,2	9,1	16,4	9,4	9,6	5,6	7,5	5,7	7,4	5,7	7,8	7,5	7,4	9,4	10,0	9,7	7,8	8,0	7,9	10,4
SEP-IPARDPA	5,8	4,5	1,4	5,7	24,3	2,9	0,0	6,4	16,1	16,1	9,8	3,4	8,3	0,0	3,3	14,8	5,0	8,5	4,9	4,9	4,9	3,4	1,7	2,5	5,6
LS	12,5	6,3	6,3	0,0	6,3	6,3	6,3	6,3	6,3	6,3	0,0	6,3	0,0	0,0	0,0	0,0	0,0	2,1	0,0	0,0	0,0	6,3	0,0	3,1	2,9
PRO	16,3	17,5	22,7	22,4	19,8	11,1	16,5	18,0	15,7	12,7	13,0	10,6	7,9	6,9	9,1	17,7	12,9	11,8	11,6	9,7	10,6	15,2	5,9	10,5	12,8
CA	0,0	0,0	15,4	7,7	8,3	0,0	15,4	6,7	36,4	36,4	10,0	30,0	10,0	0,0	0,0	10,0	10,0	15,9	9,1	9,1	9,1	30,0	10,0	20,0	12,9
CMC	10,5	11,6	13,0	20,2	23,6	21,0	23,9	17,7	28,6	25,8	24,6	14,1	9,5	11,1	15,9	29,7	19,4	19,8	21,5	14,5	18,0	24,2	17,5	20,8	19,1

Appendix 4. List of Abbreviations and Acronyms

English		Macedonian	
Acronym	**Full Name**	**Acronym**	**Full Name**
CSA	Civil Servants Agency	АДС	Агенција за државни службеници
AL	Albanian language	АЛ	Албански јазик
SARM	State Archives of the Republic of Macedonia	АРХИВ	Државен архив на Република Македонија
BD	Bachelor's Degree	ВСС	Висока стручна спрема
TYUS	Two-Year Undergraduate Studies	ВШС	Виша стручна спрема
GS	General Secretariat	ГС	Генерален секретаријат
SAGW	State Authority for Geodetic Works	ДЗГР	Државен завод за геодетски работи
DPDP	Directorate for Personal Data Protection	ДЗЛП	Дирекција за заштита на личните податоци
SSO	State Statistical Office	ДЗС	Државен завод за статистика
PRD	Protection and Rescue Directorate	ДЗСПАС	Дирекција за заштита и спасување
EN	English language	EN	Англиски јазик
MI	Ministry of the Interior	МВР	Министерство за внатрешни работи
ME	Ministry of Economy	МЕ	Министерство за економија
MEPP	Ministry of Environment and Physical Planning	МЖСПП	Министерство за животна средина и просторно планирање
MH	Ministry of Health	МЗ	Министерство за здравство
MAFWE	Ministry of Agriculture, Forestry and Water Economy	МЗШВ	Министерство за земјоделство, шумарство и водостопанство
MC	Ministry of Culture	МК	Министерство за култура
MK	Macedonian language	МК	Македонски јазик
MLSG	Ministry of Local Self-Government	МЛС	Министрство за локална самоуправа
MFA	Ministry of Foreign Affairs	МНР	Министерство за надворешни работи
MD	Ministry of Defense	МО	Министерство за одбрана
MES	Ministry of Education and Science	МОН	Министерство за образование и наука
MTC	Ministry of Transport and Communications	МТВ	Министерство за транспорт и врски
MLSP	Ministry of Labor and Social Policy	МТСП	Министерство за труд и социјална политика
MF	Ministry of Finance	МФ	Министерство за финансии
SEA-IPARDPA	Secretariat for European Affairs	СЕП-ИПАРДПА	Секретаријат за европски прашања
LS	Legislative Secretariat	СЗ	Секретаријат за законодавство
SR	Serbian language	SR	Српски јазик
HSE	High School Education	ССС	Средна стручна спрема
PRO	Public Revenue Office	УЈП	Управа за јавни приходи
CA	Customs Administration	ЦУ	Царинска управа
CMC	Crisis Management Center	ЦУК	Центар за управување со кризи