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Original scientific paper
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ICT AND LOCAL E-GOVERNANCE IN PLANNING REGIONS IN NORTH MACEDONIA

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Pece Mitrevski

Abstract:

Emerging trends in Europe suggest a review of the current thinking on e-governance, focusing on greater quality and efficiency in public services, especially when taking a European and prospective approach, as North Macedonia is trying to take. The paper shows a results of conducted survey about the capacities of the centers of planning regions in North Macedonia, in the area of ICT and e-governance. There are also an appropriate recommendations about gaining the main benchmarks of “good” e-governance in the centers.

Keywords: e-governance, ICT, balanced e-Governance index, local government

JEL classification: G38; H11; H76; H83

INTRODUCTION

Within the Project "Sustainable and Inclusive Balanced Regional Development in North Macedonia" between the Government of Republic of North Macedonia, represented by the Cabinet of the Vice President in charge of Economic Affairs and Coordination of Economic Departments, and the Swiss Confederation, acting through the Embassy of Switzerland Agency for Development and Cooperation (SDC), the support of the Government for allocation and implementation of funds for balanced regional development in a transparent and predictable manner, according to the level of development of the planning regions, will be facilitated by establishing an ICT system to improve inter-institutional coordination in the process of planning, implementation, monitoring and evaluation of the policy for balanced regional development. The aim of the Project is to support the competent national authorities to better guide and implement regional policies for balanced and inclusive regional development in order to improve the management and allocation of resources to strengthen regional governance and economic development. Accordingly, based on the fact that the SiReRa

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ICT system has been developed within the Project, but for its support and promotion, an analysis of the ICT capacities of the municipalities, as well as the centers of the planning regions is envisaged. This analysis will help support decentralization, democratization and good governance.

This analysis was prepared by the members of the project unit that implemented this project and the authors are grateful to the leaders of the municipalities and centers of the planning regions of the Republic of North Macedonia who shared their insights and experiences with local e-government in our country.

The remainder of this paper is organized as follows. In Section 1 we introduce the concept of local e-governance. In Section 2 we present the assessment methodology for measuring local e-governance, whereas in Section 3 we analyze current situation of ICT and local e-governance in the centers of planning regions in North Macedonia. We conclude the paper with a discussion on efficiency, transparency, monitoring functionality, change management, funding and development strategies of the centers of the planning regions.

1. ICT AND LOCAL E-GOVERNANCE

Information and communication technologies (ICT) and telecommunication and digital networks are considered as a major driver in building information societies and economies and are increasingly emerging as a new factor in advancing existing management practices.

For developing countries that have managed to develop relatively stable democracies, especially EU candidate countries, the main benefit of technology-based e-government (e-government) systems is recognized in building full-fledged open information societies by providing a wide range of online public services in fostering mutually effective public-private partnerships, gaining visible economic benefits, strengthening representative democracy by overcoming low voter turnout and, most importantly, fundamentally changing existing governance practices and models.

There are several models of e-government that meet the needs of countries at different stages of development through different levels of democratic principles applied in practice, and at the local level, e-government and the proper use of ICT can enhance and support economic and social development.

E-governance is an instrument of the information society in the form of management principles, strategies, systems and tools that enable the use of ICT (information and communication technologies) in interaction between and between key members of society - the state, citizens and businesses - to strengthen democracy and support development.

When transferring competencies from central to local level, municipalities take on greater development responsibilities for their communities. All this requires serious effort and the use of information and communication technology in this process can and should help local governments to work more efficiently and provide better services to citizens.

At the local level, e-governance and the proper use of ICT can strengthen and support economic and social development, especially in strengthening officials and municipal representatives, providing connections, networking, timely, efficient, transparent and accountable service. Local e-government means using the power of ICT to transform the accessibility, quality and cost-effectiveness of public services and to help revitalize the relationship between customers and citizens and the public bodies working for them.

The development of the information society is largely a problem of local governments because local governments, compared to the central government, are closer to the citizens. Because after decentralization, municipalities will offer a new, wider range of services to citizens, it is a great challenge to offer those services in a traditional way, but also as e-services.

The implementation of the broadband strategy, as well as the basic information security requirements, are important issues for local governments. Building a framework for the development of ICT infrastructure and offering e-services to businesses makes the central body of local self-government, which affects the development of the economy in the region. Competition between local governments in the field of information society development is a problem of the welfare of the region to offer new jobs, better place to live, social security, taking into account the needs for appropriate services. The implementation of e-services and the broadband strategy is also an opportunity to overcome the problems of different social groups and remote areas. The well-developed ICT infrastructure with an intensive offer of e-services by the local government is its challenge to be involved in the decision-making process by large groups of active citizens and to support the development and implementation of e-democracy in the region. Especially important is the fact that according to the State Statistical Office of Republic of North Macedonia, in 2019 81.8% of households are connected to the Internet, and 81.4% of citizens between 15 and 74 years are active users of the Internet. This supports the fact that the potential for decision-making by large groups of active citizens is really great.

The implementation of the e-model of the local self-government is of the greatest importance due to the entire process of redesigning the functions and structure of the local self-government in North Macedonia. It is known that ICT can and should support innovation and redesign of existing organizational processes, as well as in government bodies, and the opportunity to use new methods and opportunities offered by ICT in the process of local government reform in North Macedonia is unique.

2. ASSESSMENT METHODOLOGY FOR MEASURING LOCAL E-GOVERNANCE

In addition to building sustainable environmental relief, planning for the development of e-government is also important. Planning should be systematic, stable and sustainable. In this planning process, organizational, legislative and fiscal environments play important roles and there are often two types of plans - strategic, long-term plans and operational, one-year action plans. The methods for defining these plans are different and above all depend on the size of the municipality. It is important to note

that although sometimes strategies and action plans are not documented and are more ad-hoc in nature, these plans usually exist as such.

In order to prepare a strategy and planning of activities, it is important to know the situation with ICT in the municipality. This paper provides an assessment analysis that balances efficient administrations with responsible democracy, based on the BEGIX (Balanced e-Government Index) tool focused on measuring "balanced e-governance" by combining electronic and participatory services in the local self-government in Republic of North Macedonia. The Bertelsmann Foundation in their study "E-Government - Connecting Efficient Administration and Responsive Democracy" developed a concept according to which "proper" e-governance is a balanced combination of electronic services and forms of electronic participation that develops within the management of changes in a municipality.

Figure 1 shows a graph that measures and evaluates the various dimensions of e-democracy and e-government services according to that concept.

This scheme allows for balanced overview for different purposes within a higher strategic level. The matrix that forms the basis of this e-governance scheme includes both dynamic and static components, with a total of five fields:

- Benefit - which refers to the quality and quantity of services offered by the municipality and accordingly the benefit that citizens receive from the offer, for example: services that are already implemented, realization of a one-stop shop system and the like

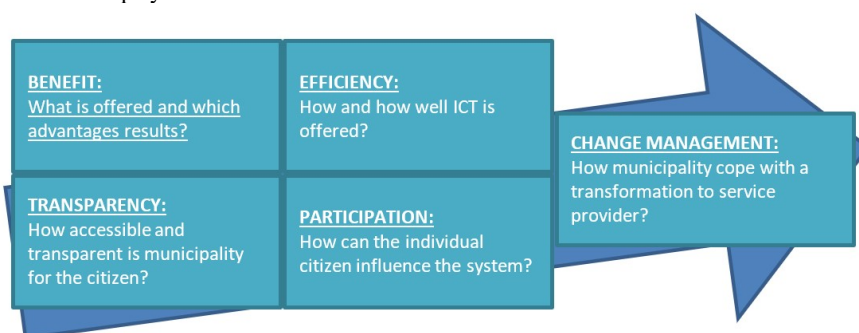


Figure 1. Scheme of results for balanced e-governance

- Efficiency - degree of efficiency improvement, for example: availability of process, application, system and database architecture, financial planning, resource planning, state of access to ICT infrastructure, platform technologies, quality and scope of training and qualification programs for employees
- Participation - which addresses the question of whether the services are designed to promote communication and enable a higher level of citizen participation, for example: whether users have access to relevant contacts from the municipality via e-mail or the web, whether they are taken in taking into account the wishes of the citizens, whether their opinion can contribute to the

decision-making processes or the opportunity to participate in debates on public topics through chats, forums and the like.

- Transparency - which refers to the transparency of the e-governance participation in the work of the municipality, for example: amount of information on executive and legal processes (meetings, press conferences, etc.), monitoring the level of processing of requests or information topics
- Change management - which determines the direction of planning and implementation processes in the e-government program, for example: strategy development, monitoring and control, inclusion and motivation of employees and the like

In theory, the ICT strategy should be developed according to the general strategy for the development of the municipality, and not vice versa. Larger municipalities often have some general strategy papers, while smaller ones often do not. In most cases, the strategy is built on a combination of bottom-up (development needs proposed by different municipal units according to their daily needs) and top-down (some strategic development considerations, including tasks set out in the National Information Society Strategy) planning. Strategy development is a collective work of all employees in the municipality, especially the ICT department, and its scope is often 4-5 years and these are the basics of operational plans - annual action plans.

In a similar fashion, a pilot research has been conducted to identify the offer of e-services by local authorities, along with e-readiness in municipalities of the Pelagonia region in the Republic of North Macedonia. The survey was carried out by means of structured interview questions based on a modified model proposed by Partnership on Measuring ICT for Development – web analysis of municipal websites in the region has been conducted, as well. This study revealed uneven distribution according to the age group of users, lack of reliability and confidence for processing the needs and requests electronically by a large part of the population, and improperly developed set of ICT tools by local governments for providing a variety of services that can be fully processed electronically.

3. CURRENT SITUATION OF ICT AND LOCAL E-GOVERNANCE IN THE CENTERS OF PLANNING REGIONS NORTH MACEDONIA

During July 2020, a survey was conducted in the centers of the planning regions and municipalities in Republic of North Macedonia. This survey consisted of several questionnaires, including the ICT Performance Capacities Questionnaire for Centers / Municipalities, which was developed based on the concept of proper e-governance proposed by the Bertelsmann Foundation.

All of 8 planning regions in Republic of North Macedonia, took a role in the survey and the following results were obtained.

Benefit. According to the survey, as can be seen in the following chart, the benefits component, in general in all centers is characterized by a low level of supply to citizens. The relevant administrative services are not available in 5 centers, in 2 they are only planned, and only in the center of the East Planning Region (PR) they are

planned, implemented and tested, but they are still far from full integration with other systems. Moreover, 5 centers do not have the opportunity to provide significant services in the existing ICT solution, which contributes to the fact that 6 of them can not offer services to citizens at the same level and on a common website. Again, the center of Eastern PR is leading the way in this area where these capabilities are at the implementation level and need to be tested and further integrated.

In general, the websites of all centers, more or less, have a design through which citizens can easily find detailed and clear functionalities. The online solutions of all centers, except the centers of the East, Southeast and Polog region, do not have a homogeneous design, although three of them plan to be implemented.

None of the centers has complete technical documentation of the process architecture of the ICT solution, although two of them plan to prepare, and the Polog has some implementation, but has not yet reached a complete completion.

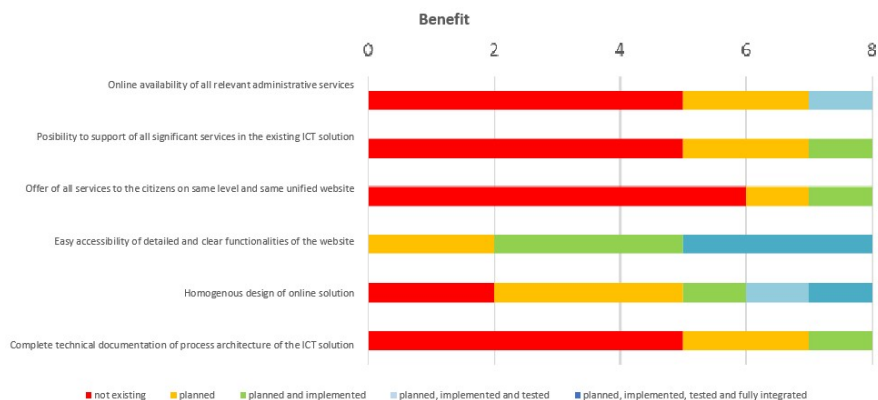


Figure 2. Benefit component

Efficiency. The answer of the center of the Vardar region is interesting, where it is still planned to enable the use of standard applications such as Word and Outlook on all workstations in the center, which is not the case with the other 7 centers. Only one of the centers, the Eastern PR, conducts ongoing planning of finances and resources in order to increase efficiency, introducing e-government solutions, unlike the others which are at the planning level or there is no thinking at all. The situation with the integration of the internet solutions with the applications from the internal ICT infrastructure in no center is not good, because only 3 of the centers are still planning, and the rest do not even plan such integration. A very similar situation is with the possibility for the employees to use auxiliary and support functions in the field of ICT and e-government, in order to enable faster solving of the problems in their work, although 5 of the centers only plan this possibility.

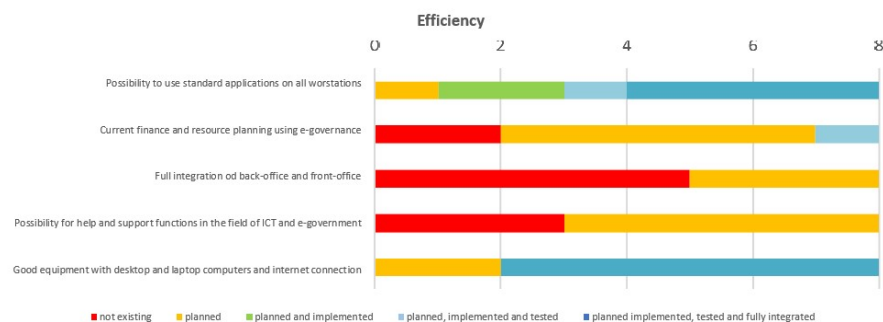


Figure 3. Efficiency component

All centers, except the centers of Skopje and East PR that are planned, are well equipped with desktop and laptop computers and internet connections.

Participation. This component can be said to be at a satisfactory level, if we take into account that only two centers do not have, or only plan, the opportunity for citizens to have direct correspondence with the correspondents from the center via e-mail or chat. In addition, citizens and companies in half of the centers have the opportunity to be so actively involved in their plans, that their requests could be taken as a good basis for further development of the ICT solution of the centers, and their opinions can influence the adoption of decisions in the centers. Also, the PR of half of the centers is actively maintained within the ICT solutions through PR campaigns or similar.

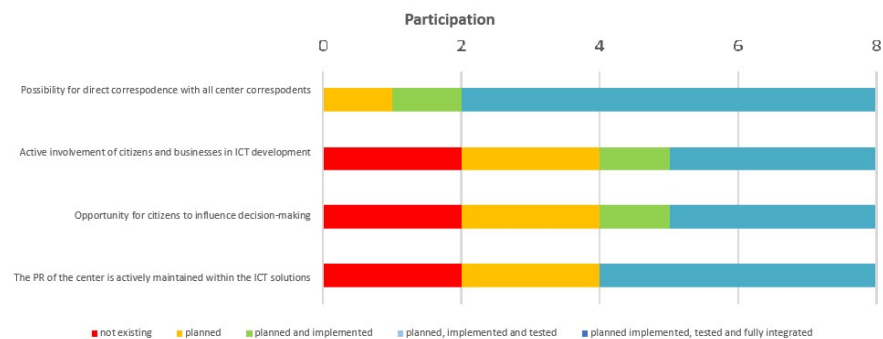


Figure 4. Participation component

Transparency. As can be seen in the following graph, transparency is not at a very satisfactory level. Only the centers of the Skopje, Polog and East PR, at different levels, offer the opportunity to the citizens to participate in the political life of the center through communication opportunities such as internet forums or managed discussions. Five of the centers, unlike the others that only plan, are fully committed to the daily updating of their website offering relevant and current information for all the needs of the citizens.

On-demand monitoring functionality is unsatisfactory. Only two of the centers, at different levels, offer the opportunity for the citizens to receive current information through the Internet about the status of their request to the center.

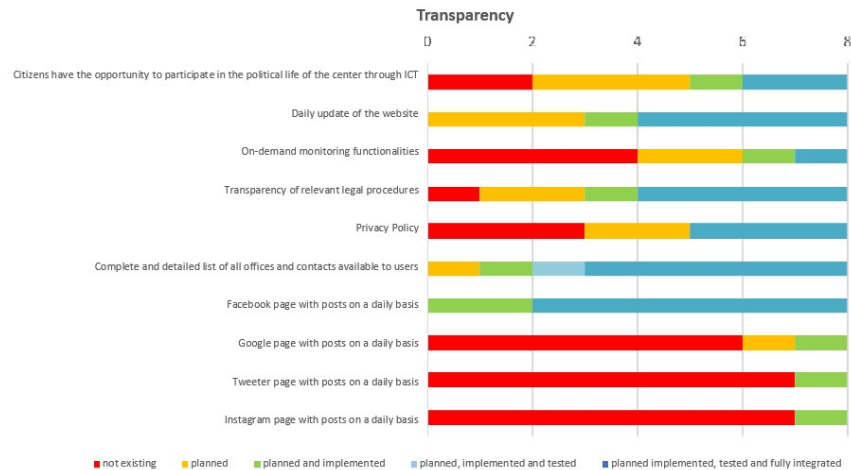


Figure 5. Transparency component

In most of the centers, the directions of the relevant legal procedures of the center are transparent and understandable for the citizens and companies, while the privacy policy is at an unsatisfactory level, because only the centers of the Southwest, Polog and Pelagonija PR can ensure full protection of privacy with application of technical measures and safety standards.

Only the center of the Polog PR does not have a complete and detailed list of all offices and contacts from the center for the users of the internet solution, but they are in the planning stage.

In terms of social networks, Facebook centers are the absolute favorite in competition with Google, Tweeter and Instagram. All the centers have their own Facebook page on which they post daily news announcements related to the center's activities. The center of the Vardar region has its own Tweeter and Instagram profiles through which it publishes news on a daily basis, and plans to open a Google profile, which the center of the Skopje PR uses to publish news on activities on a daily basis.

Change management. This component in the centers is at a really low level. Although 4 of the centers plan, only Pelagonija and Polog PR at different levels take into account the results of other e-government projects, using the principle of best practice in managing the center's processes.

Only the centers of Eastern and Polog PR include their e-government activities as a permanent part of the center's strategy, with Eastern PR even hiring external experts and consultants to develop e-government activities. This is not the case at all with other

centers where these parameters either do not exist at all, or are only in the planning stage.

None of the centers has a professional project management team working on consistent development of e-government activities, nor does it have a detailed marketing strategy to inform all participants and partners about the goals and development of e-government activities of the center, although some centers plan to introduce a project management team and marketing information strategy.

In half of the centers, staff are actively involved in change management processes at the center, at various levels.

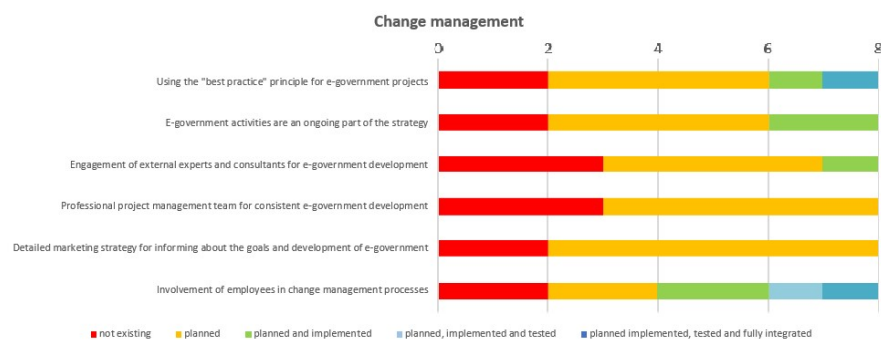


Figure 6. Change management component

Strategy, action plans and internet availability. All centers in the planning regions have a development strategy, and only the center of the Southwest PR has an ICT development strategy in the form of a Regional Innovation Strategy prepared by external experts.

The websites of all centers are being unified and three of the centers have ongoing or planned activities to improve the availability of the Internet in the field of local self-government.

The centers of the Eastern and Pelagonija PR provide free wireless internet around their offices, and the centers of the Pelagonija PR and the Southeast PR provided information that free wireless internet is provided, such as the square in Strumica in the case of the Southeast PR.

Hardware and system software in the centers. Windows is the operating system that dominates the hubs. Only the center of Vardar PR uses another operating system on 5 computers. Out of a total of 76 computers in all centers running on the Windows platform, as many as 46 are from the latest generation of operating system (Windows 10), which indicates the relevance of the computers owned by the centers. Out of all centers, only 4 centers reported a need for a total of 7 new workstations, which is about 9% of the total number of 76 workstations and indicates the good equipment of the centers in terms of available hardware, especially the centers of the Southeast and Vardar PR which have as many as 15 i.e. Workstations.

The centers are also good with servers. All centers except the centers of the Southeast PR and Pelagonija PR, have one server each, and the center of Polog PR has even 3 servers, which are dominated by Windows Server operating system. The Polog PR Center reported 3 co-hosted servers, and the Eastern PR Center reported one co-hosted server with Windows Server operating system on all. The centers of East, Polog and Southwest PR even have database servers, with the center of East PR having Microsoft SQL Server and the other two MySQL.

Of all the computers in the centers, 56 computers are equipped with antivirus software from different manufacturers.

The centers also have mobile applications. The center of the Eastern PR stands out with 4 mobile applications, followed by the center of the Southeast PR with 2 and finally the center of the Southwest PR and the center of the Pelagonija PR which reported 1. Applications have different purposes including tourism, biodiversity, meteorology, business and similar.

Software packages in the centers. The centers also have standard tools for office work with exactly 58 packages in all centers. Of these, 21 are Microsoft Office 2017 or later, 27 are Microsoft Office 2013 or older, Polog PR on its 8 computers uses OpenOffice which is open source software and the best free alternative to Microsoft Office, and 2 are of a different kind. This indicates that the tools need to be upgraded and that this condition is probably due to the cost of the Microsoft Office suite itself.

In terms of collaboration tools, despite the fact that the questionnaire offered several different tools, according to the survey, only 4 centers use exclusively Skype with a total of 30 users.

Most centers do not have specific information systems. In the East PR Center one user uses the e-finance system as a financial management system, one user uses the ESPP system as a procurement management system and one user uses the GIS system for the planning region. The Center of Southwest PR has a financial management system used by one user, has 5 users of the e-procurement system and an internal database for project management and has 2 users who use licensed versions of ArcGIS Desktop and ArcGIS Server. The Vardar PR Center uses the Luca system from ENTER as a financial management system, and the Polog PR system uses a solution from EduSoft for financial management, the ESPP procurement management system and an integrated GIS platform by INS Skopje.

CONCLUSION

It can be concluded that, in general, the benefits of ICT technologies in the centers of the planning regions are at an unsatisfactory level. They do not have a satisfactory level of supply to the citizens. Administrative services through ICT technologies, with honorable exceptions, are not available in most units, nor can they provide significant services in existing ICT solutions. It can be said that the centers have some design on their pages through which citizens can find detailed and clear functionalities, but it is worrying that they do not have complete technical documentation of the process architecture of the ICT solutions that work with them.

In terms of efficiency, for the most part, the centers consider themselves well-equipped with desktops and laptops, as well as Internet connections, and allow their employees to use standard applications such as Word and Outlook on all workstations. On the other hand, a very small part of the units carry out ongoing planning of finances and resources in order to increase efficiency, introducing e-government solutions and have full integration of their internet solutions with the applications from the internal ICT infrastructure. An even smaller number of units have the opportunity to enable employees to use support and support functions in the field of ICT and e-government, to enable faster resolution of problems in their work.

From the conducted survey, unlike the municipalities, the centers can not say that the level is unsatisfactory, because they offer the opportunity for citizens to have direct correspondence with the correspondents from the center via e-mail or chat. In addition, citizens and companies in most of the centers have the opportunity to be so actively involved in their plans, that their requests could be taken as a good basis for further development of the ICT solution of the centers, and with their opinions and influence in bringing of decisions.

Transparency is not at a very satisfactory level. Only a small number of centers offer citizens the opportunity to participate in the political life of the center through communication opportunities such as internet forums or driven discussions. On the other hand, the responsibility for the daily updating of the websites is at a high level in most of the units, offering relevant and current information for all the needs of the citizens.

On-demand monitoring functionality is really unsatisfactory. A very small number of units offer the opportunity for citizens to receive current information online about the status of their application to the center where they submitted it. On the other hand, the transparency and comprehensibility of the guidelines of the relevant legal procedures of the centers is at a satisfactory level. From the aspect of protection of privacy by applying technical measures and security standards, the centers have an unsatisfactory index. Also, the availability of a complete and detailed list of all offices and contacts from the centers for the users of the internet solution is at a high level. As far as social networks are concerned, Facebook is the absolute favorite, through which the centers publish news about their activities on a daily basis. The other social networks offered (Google, Tweeter, Instagram) are almost non-existent.

Although two of the centers reported that their employees are actively involved in change management processes, change management at the centers is at a worrying level. They do not take into account the results of other e-government projects, using the principle of best practice in process management, and very few of them hire external experts and consultants to develop e-government activities and very few of them have professional project management teams working on consistent development of e-government activities. It is similar with the detailed marketing strategy for informing all participants and partners about the goals and development of e-government activities, where none of the centers of the planning regions has such a strategy.

The situation with the development strategies that most of the centers have is at a satisfactory level, but unfortunately, this is not the case with the ICT development strategies, because only the Southwest PR stated that they also have an ICT development strategy.

The number of units that have reported that they have current or planned activities to improve the availability of internet in the area of local self-government is solid, and a good part of the centers provide free wireless internet, although this mostly refers to the surroundings of municipal buildings or other public buildings. .

The centers of the planning regions are characterized by solid equipment with hardware, servers and other ICT infrastructure, which indicates that they do not have a technical obstacle to implement a solid ICT strategy. Microsoft technology predominates in all units, from operating systems, servers and databases, to collaboration and office tools.

In the era of mobile devices, the need to raise awareness in local self-government about the opportunities offered by mobile devices is evident, given that the centers have reported only a few mobile applications.

Only some of the centers are well equipped with software packages for various purposes, such as financial management systems, documents and human resources. Geographic information systems and request tracking systems are underrepresented.

According to the analysis made in both the centers and the municipalities, in order to improve the obtained picture, it is recommended to implement the directions described in this paper. This means increasing the number of ICT departments in the municipalities, which can alternatively be organized by merging several municipalities that would have a joint public enterprise for managing ICT resources in those municipalities. It would be good to model such departments to be established within the centers for management of the planning regions, where these departments would serve all municipalities that build that planning region.

Furthermore, establishment of a municipal ICT Council where all actors involved in ICT projects from the municipality are coordinated, introduction of ICT strategy of the municipalities, through involvement of external experts and involvement of ICT representatives of large municipalities and centers in the National ICT Council where present the basic and strategic issues in the field of information society of the municipalities.

Many of the centers have a solid ICT infrastructure and include their servers for different purposes, and have only a small number of co-located servers and virtual private servers. From the aspect of the registered lack of ICT departments, but also from the financial aspect, the fact of problems in the administration of these servers is extended, so it is advisable to gradually replace the existing infrastructure with collided servers and virtual private servers. However, since they are based on cloud services, it is important to hold seminars in which management will gain confidence in cloud services and that it is a technology that guarantees data security and reliability, even if the data is not physically stored in the centers themselves.

In terms of funding, replacing commercial software packages with open source software over the long term would be of great benefit to both municipalities and centers, but given that most units use Microsoft technologies, training in the use of Microsoft software would be necessary. alternative software packages, which would initially mean a large financial outlay.

Seminars are also needed to increase the transparency and participation of citizens and businesses in e-government, as well as in change management. These seminars should present some examples from the EU where the principle of "best practice" in e-government in local self-government would be presented, which would help raise awareness of the latest achievements in e-government.

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