



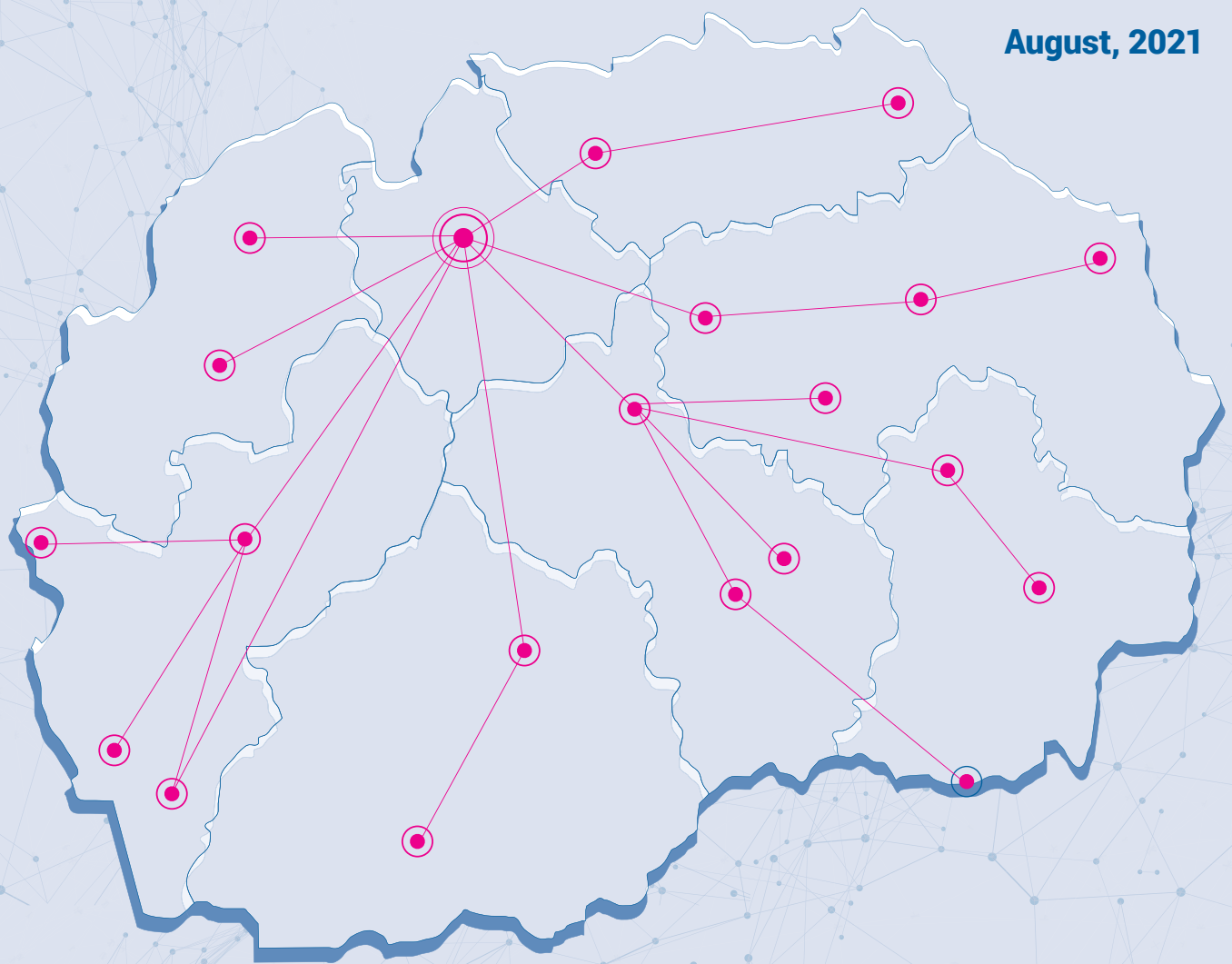
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ANALYSIS OF E-SERVICES IN MUNICIPALITIES OF THE REPUBLIC OF NORTH MACEDONIA

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SUMMARY

Almost all strategies for the development of an information society and digital technologies relating to public administration reform plan activities for the state to create an enabling environment for innovation and to ensure delivery of personalised, easily available services for all users, thereby enhancing the transparency and accountability of state institutions. In the case of our state, however, digitalization strategies are focused only on services provided by the central government. Little attention is paid to the digitalization of services provided by local self-government units. As shown in this analysis, in spite of increasing demand and expectation from local self-government units, there is no strategy in place for the digitalization of services provided at local level. This is much needed at a time when resources available to municipalities are downsizing and the use of technology could help them do more for their citizens, with less resources.

The Government and municipalities in North Macedonia (RNM) must use digital technologies to establish an integrated system of public services that would allow flexible, accountable and safe provision of services for all, without any exceptions. Such a system must also meet the demands of citizens, that is, users, in respect of monitoring performance and public spending in their municipalities, and for holding them accountable. This includes, in particular, greater transparency and more efficient access to information on the overall work of municipal administrations, starting with strategies, plans, and ending with their budgets. Transparency and accountability are of crucial importance as they contribute to the prevention of corruption and increase trust in municipalities. Equally important is compliance with security standards for the protection of citizens' personal data, which represents another key issue that affects public trust in municipalities, and is an important pre-condition for increased uptake of digital services and tools.

In order to make digitalization sustainable, a mechanism for monitoring the quality of e-services needs to be in place. Continuous and comprehensive consultations are needed with users, that is, citizens and businesses, in various ways, to assess whether the digital services meet their needs. Moreover, sustainability of e-services depends on their continuous operation with high quality and consistent standards of delivery, reducing the number of incomplete and outdated e-services to zero. At the same time, before engaging in the digitalization of their services, municipalities must first optimise business processes and streamline procedures for service delivery, and only then engage in planning digitalisation.

While almost 85% of households in RNM have access to the internet, of which 80% have access to broadband internet, due attention should be paid to the so-called digital gap, which includes not only access to infrastructure and internet, but also adequate skills of citizens whereby all of them, without exception, are able to safely and competently use digital services and enjoy the benefits of the digital transformation in our society. In addition, there might be little economic justification for investment in the digitalization of local services that do not yield revenue for municipalities, in spite of them being necessary and of priority importance for a large number of citizens. Challenges related to the digital gap indicate the need for a systemic approach and investment in the improvement of digital skills among the population, in order to ensure a level of digital literacy and skills that would justify investments in the further digitalization of services. Therefore, digital literacy, that is, the digital skills of citizens to access information and other digital resources, to browse and to value their quality, and to produce and distribute digital content, remains essential for the cost-effective utilization of the advantages offered by the digital transformation of society for social, educational, economic, political and other societal purposes.



Digitalization is not an end in itself. It is not sufficient to discuss, or even to understand the potential of digital technologies, because it is more important to find ways for these to be most efficiently integrated into municipal administration work, expressly for the purpose of raising the quality of services delivered to citizens. This would contribute to citizens' increased confidence in municipal and state institutions, and would ultimately strengthen democracy in general. Digital technology has the potential to offer all of that, but requires a serious plan for digitalization of municipal services, and most certainly, it requires sufficient resources for its implementation, both human and financial.

It is of exceptional importance for existing enthusiasm and political will for digitalization to be transformed into specific actions and projects. Citizens, businesses and all other stakeholders should be consulted, and priority should be given to the digitalization of local services that would bring about change and tangible benefit for citizens.



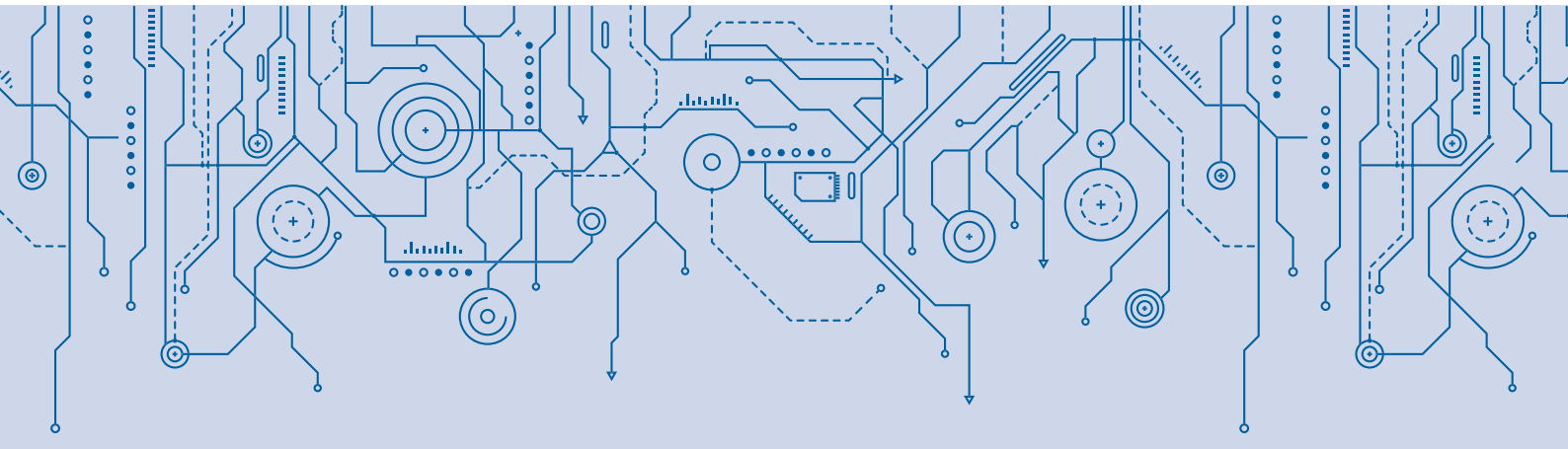
INTRODUCTION

In the Republic of North Macedonia, the process for the development of e-Government at both central and local level started in the late 20th century, but more serious and organized efforts, as well as stakeholder involvement, were noted in 2005, with the development of the National Strategy for the Development of an Information Society and Action Plan of the Republic of Macedonia (Government of RM, 2005). In the same year, a strategic partnership was established with *Microsoft* for the development of e-Government services (e-services), resulting in the creation of the web-portal www.uslugi.gov.mk which, at one point in its operation, offered more than 300 e-services ranging from the lowest to the highest level of online sophistication. Initially, this web-portal offered only information in respect of the competences of individual ministries and agencies relating to the provision of particular services, descriptions of relevant procedures for service delivery and appropriate forms, applications and templates that should be completed and submitted in hardcopy for citizens to receive necessary services by means of physical presence at the relevant state institution. Plans were in place to raise the level of online sophistication to include interaction and online transactions (EU, 2015). Unfortunately, not much later in time, this web-portal ceased to exist due to lack of solid planning and organization in terms of updating the e-services offered. However, in the period that followed, an increasing number of e-services were developed and put into operation, mainly those delivered at central, but also at local level, and relevant for sectors such as education, administration, finance, construction and urban planning. A group of 20 core e-services was established, as defined by the European Commission and monitored by Capgemini, used to benchmark the state-of-affairs in respect of the development of e-Government and the information society in general. At times, the use of information technologies in RNM demonstrated excellent results in particular sectors. In 2009, under one of the basic indicators for the use of information technologies in the field of education - the number of students using one and the same computer in primary and secondary education, RNM, with a score

of 1.45 under this indicator - demonstrated significantly better achievements compared to EU member-states, whose target by 2010 for this indicator was to reduce its value below the threshold of 10 (UNDP, 2010). Moreover, under the digital economy development indicators, in 2017 RNM was ranked second among the cohort of six countries from Southeast Europe, based on its score under the NRI Index, and was top ranked in the world according to this indicator under the Internet and Telephony Sectors Competition Index (Janevski et al., 2017).

In the last decade, the development of e-services in RNM was characterized by an increasing awareness among interested parties that the concept of e-services contributes to greater transparency, accountability, efficiency and effectiveness in the delivery of public services to citizens and businesses, as well as improved communication between the public, private and civil sectors (Janevski et al., 2014). In addition to the activities related to the enriched offer of e-services at central and local level, discussions at state level frequently turned to the quality of such services, availability, openness and accountability, participation, application of the concept of e-Government and e-services in the service of public administration reform.

Digitalization and digital transformation were raised on the list of priorities of the Government of RNM and local self-government units, and were put in the service of greater digital transparency with the introduction of the Accountability Tool on Expenses of Public Office Holders (www.vlada.mk, 2017) and other initiatives. In this respect, the Government's decision in 2017 to publish 21 documents related to reports, rulebooks and other acts of public interest, which all ministries were obliged to publish on their websites as part of their transparency and accountability efforts, was also replicated by municipalities in order to offer an additional e-service to their citizens, thus contributing to greater openness in local government. In 2020, with support from the Ministry of Local Self-Government, municipalities in RNM



started the process for the use of digital technologies in order to make available their data and publish them in open format, following the guidelines given in the Open Data Strategy and Action Plan 2018-2020 (MISA, 2018).

Digital transformation allows local and central authorities to transform their model of business, create new processes, generate greater value and facilitate new products and digital services, that is, e-services.

An important thing that needs to be given due attention to in the next period and which should contribute to the promotion of e-services in RNM concerns the development of the methodology for measuring user satisfaction with e-services delivered at central, but especially those delivered at local level (by municipalities), both with respect to service delivery under the traditional model, but also e-services, and to introduce the practice of regular satisfaction surveys and publication of survey results (MLSG, 2015).

In the process of introducing new e-services aimed at providing greater benefits for citizens and the business sector from utilization thereof, operational procedures need to be streamlined, the level of interaction and feedback needs to be improved on the part of public authorities responsible for service delivery in both traditional and electronic form, and due consideration should be given to the need to improve stability, availability and security of e-services.

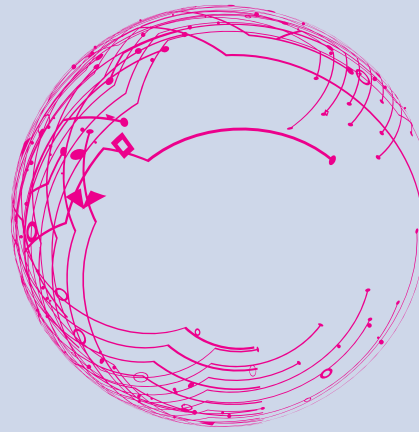
Determining priorities for the implementation of e-services is important because it allows authorities to better allocate resources when making a choice among investment options for different e-services. Selection of these priorities needs to consider the following aspects (World Bank, 2006):

1. structure and management of the process for introducing e-services;
2. cost-benefit analysis of individual services;
3. priority-setting framework – criteria, risks and stakeholders.

This research study aims to analyse the state-of-affairs with respect to e-services offered by municipalities in RNM in terms of their quality, user satisfaction, availability of e-services at local level and possible gaps between actual supply and real demand for municipal e-services.

The subject of analysis is the e-services offered by local self-government in RNM. At this point in time, when the world is pre-occupied with the consequences of the Covid-19 pandemic and when it is risky for people to engage in physical social interactions, electronic services, digital technologies and ICTs become a much needed and invaluable alternative. Nowadays, the digital transformation of organizations becomes a critical factor for competitive advantage, and the Covid-19 crisis has further underlined the importance of digitalization, even in respect of everyday existence and the operation of businesses, organizations and work (Janevski & Angelova, 2020).

EMPIRICAL RESEARCH



Research objectives

The primary objective of this empirical research is to analyse e-services delivered by municipalities in RNM in terms of three categories of function, as follows:

- 1 transparency and accountability;
- 2 communication;
- 3 approvals, permits and other services.

An additional objective of this research is to indicate the advantages and disadvantages of existing e-services provided by municipalities in RNM, but also to identify ways in which municipalities can set their priorities about which services will be offered in electronic form and which services will be digitalized next.

A final, but equally important objective of this research is to detect the possible gap between e-services currently offered by municipalities in RNM and the demand for digitalized e-services among their customers.

Methodology

The research was conducted with the use of three research instruments, as follows:

- 1 *Focus group*: a focus group discussion was held on 07.06.2021 on the topic "Availability and quality of e-services at local level in the Republic of North Macedonia". The focus group was attended by 16 participants, including representatives from civil society organizations that work on issues related to the promotion of local e-services and several employees from the state municipal administration. In fact, focus group participants were also users of e-services in rural and urban municipalities across the state or interested parties in local e-services. More specifically, participants were actively engaged in work on issues related to:

- + digitalization of municipalities;
- + transparency and openness of local government;
- + sustainable development of local government;
- + development of local democracy.

The focus group included discussions around participants' experiences related to the use of electronic services provided by municipalities with respect to:

- + availability;
- + diversity;
- + transparency and accountability;
- + communication;
- + scope and level of online sophistication;
- + citizens' perceptions about the quality of e-services;
- + meeting their needs/expectations;
- + whether there is a gap between what citizens expect from e-services, what is offered to them and how to address it.

Information collected from this focus group was used to further refine the research questions for this entire research study and they provided guidelines for questions defined in the survey for citizens related to their satisfaction with e-services at local level.

2 *Online monitoring of websites of municipalities in RNM*, conducted by one researcher in the period from 04.06.2021 to 13.06.2021. Relevant website addresses for local self-government units were taken from the list of municipalities and their contact information available on the official website of the Association of Local Self-Government Units (ZELS) (www.zels.org.mk), whose members are all municipalities in RNM. In particular, this monitoring activity focused on the three functions described above and was based on 12 indicators, as follows:

- a. Four indicators were defined with respect to *transparency and accountability*:
- i. I1 – timely publication of agendas for municipal council sessions;
 - ii. I2 – publication of all public procurements;
 - iii. I3 – publication of the budget for the current year;
 - iv. I4 – publication of minutes and decisions taken at the last three sessions held by the municipal council;
- b. Four indicators were defined with respect to *communication*:
- i. I5 – electronic form for reporting problems;
 - ii. I6 – possibility of posting questions for the mayor;
 - iii. I7 – availability of *e-mail* contact details for municipal employees;
 - iv. I8 – access to public information (a new indicator under the online monitoring of municipal e-services conducted in 2014);

c. Four indicators were defined with respect to *approvals, permits and other services*:

- i. I9 – applications for issuance and monitoring of construction permits;
- ii. I10 – template for property tax returns;
- iii. I11 – publication of employment calls;
- iv. I12 – electronic application for B integrated environmental permits.

Each indicator was assigned one of three values:

- + 1 – researched e-service **is available** on the monitored website;
- + 0 – researched e-service **is not available** on the monitored website;
- + 0.5 – researched e-service **is incomplete/irregular** on the monitored website.

Indicators defined for each category of website functions were grouped into three indices:

- + ITR – Index of Transparency and Accountability;
- + ICO – Index of Communication;
- + IAP – Index of Approvals/Permits.

The value for each index is obtained when the sum of indicators defined for the relevant function whose value is 1 is decreased by 0.1 and multiplied by the number of indicators in the function category whose value accounts for 0.5, that is:

$$I = n - 0.1 * k$$

where:

n is the number of indicators under the relevant index with a value of 1, k is the number of indicators under the relevant index with a value of 0.5.

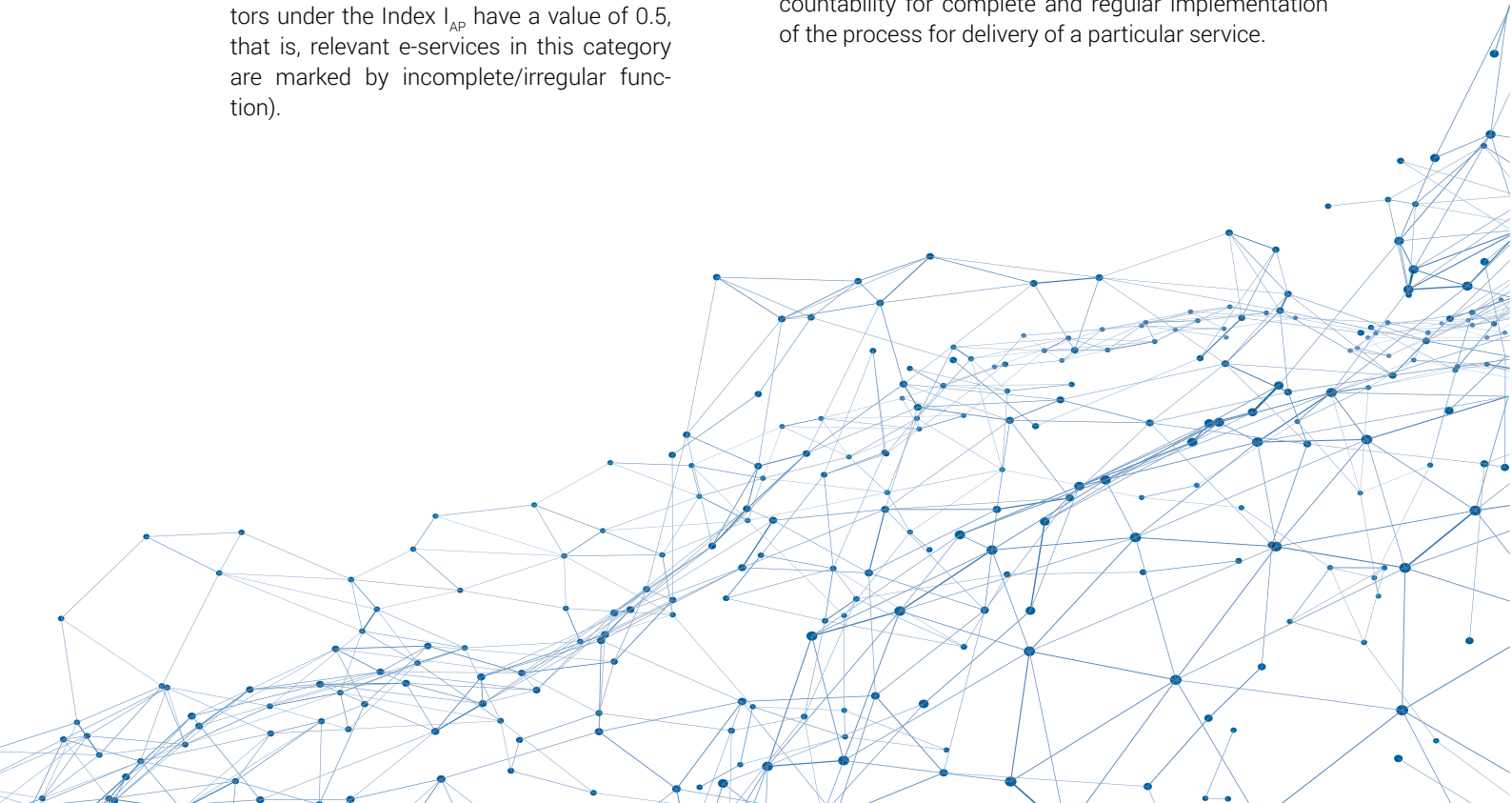
Hence, relevant indices may have final values in the following range:

- + I_{TR} : min=-0.4, max=4 (minimum value of -0.4 would be obtained when all four indicators under the Index I_{TR} have a value of 0.5, that is, relevant e-services in this category are marked by incomplete/irregular function).
- + I_{CO} : min=-0.4, max=4 (minimum value of -0.4 would be obtained when all four indicators under the Index I_{CO} have a value of 0.5, that is, relevant e-services in this category are marked by incomplete/irregular function).
- + I_{AP} : min=-0.4, max=4 (minimum score of -0.4 would be obtained when all four indicators under the Index I_{AP} have a value of 0.5, that is, relevant e-services in this category are marked by incomplete/irregular function).

Here, due elaboration is needed in respect of the role of the parameter “ k ” in the methodology for determining index values, that is, decreasing the value of the parameter “ n ” by the value of “ $0.1 * k$ ”. Namely, it is established that users of e-services attribute great importance to accuracy. This means that incomplete or irregular e-services (of which users cannot be aware) could cause major inconveniences and problems for them, especially because users of e-services in RNM take services delivered by authorities at central and local level without any reserve whatsoever. For example, one user of e-services provided by a municipality regularly follows announcements for scheduled sessions of the municipal council and draft agendas, when the concerned e-service is incompletely or irregularly maintained, he/she cannot know if a particular announcement for a scheduled and/or held session by the municipal council is not posted, which could create real problems.

Therefore, this methodology differs from other similar methodologies whose index values are based on frequency of events and are calculated as whole numbers which is the sum of the number of occurrences of particular events (in the specific case, the sum of indicators with the value of 1), introducing values of relevant indices that belong to the group of rational numbers.

According to the methodology proposed, the existence of indicators for certain e-services in some municipalities whose value is expressed as a rational number actually shows an **absence** of quality procedures and accountability for complete and regular implementation of the process for delivery of a particular service.



It should be noted that an identical analysis based on online monitoring of e-services provided by municipalities and pursuant to the same methodology was conducted in 2014 for all 81 municipalities in Macedonia, and therefore this research provided certain dynamic observations related to whether and to what extent individual municipalities had promoted or demoted their e-services. The only difference between the online monitoring conducted in 2014 and the one from 2021 concerns the fact that under the 2014 monitoring, the communication function had three, instead of four indicators, that is, indicator I8 (access to public information) was not taken into consideration. Hence, in 2014, the Index on Communication I_{co} was comprised of three, instead of the current four indicators, whereby the possible minimum and maximum index value at that time accounted for $min=-0.3$ and $max=3$, respectively. From 11 e-services offered by municipalities and analysed in the 2014 monitoring, their number has increased to 12 e-services in this research conducted in 2021. The analysis below includes charts and tables from both online monitoring efforts, in 2014 and 2021, and all indications related to a comparison of e-services at municipal level in 2014 and 2021 are given in textboxes like this one.

In addition to the analysis of 12 e-services offered by municipalities with respect to defined functions, that is, transparency and accountability, communication and approvals, permits and other services, this research also analyses presence and frequency of other functions on municipal websites, those being:

- + data offered in open format;
- + the possibility for local community involvement in the selection of future e-services;
- + the multilingual function of municipal websites.

Sample of the online monitoring

The online monitoring was conducted with all municipalities in RNM. It covered the websites of all (N=81) local self-government units in the country, of which 44 are urban (including the City of Skopje as a separate local self-government unit and 10 municipalities within the City of Skopje), and 37 rural.¹

- 3 *Online survey for users of municipal e-services.* This survey was conducted anonymously, in the period from 28.06.2021 to 30.06.2021 by means of a questionnaire comprising of 10 questions (Annex 1) posted on the platform *Google Forms*. A link to the survey was sent to 500 randomly selected e-mail addresses of individuals that were familiar with the topic of e-services at local government level in RNM. .

Analysis of results

Analysis of focus group discussions

Results from focus group discussions could be grouped into three categories, as follows:

- + advantages of e-services provided by municipalities in RNM;
- + disadvantages of e-services provided by municipalities in RNM;
- + method for determining priority e-services provided by municipalities to be developed and offered in the future, only in electronic form without also being delivered in the traditional manner.

¹ According to the Law on Territorial Organization of Local Self-Government in the Republic of Macedonia "Official Gazette of the Republic of Macedonia" no. 55/2004, 12/2005, 98/2008 and 106/2008.

Advantages of e-services provided by municipalities in RNM

- One of the most important advantages, as emphasised by a majority of focus group participants, are e-services of the highest level of sophistication, that is, those implying “full online transaction”², which were developed and maintained in the past under guidance from ZELS, certain line ministries and development organizations profiled in this field and active in the state.

Examples of this type of e-services delivered by municipalities are portals and web applications like e-construction permit (www.gradezna-dozvola.mk), the portal for B integrated environmental permits and environment studies (<http://www.ekoloska-dozvola.mk>) (which, unfortunately, is no longer active, a/n), e-construction land (www.gradezno-zemjiste.mk) and the application www.e-stvari.mk, e-urbanizam.mk, the web application of the City of Skopje (www.danoci.skopje.gov.mk). This method of organization of e-services provides the best effect and is marked by the highest efficiency. The municipal administration and citizens accurately follow the business process by going through the procedure for utilization of e-services, and therefore there is no possibility of any misunderstanding or overlapping competences between organizational units at the municipality or between individual job positions. Therefore, the cases are processed fast and allow for continuous insight into the stage of the procedure they are currently undergoing.

- In the opinion of some participants, an advantage of municipal e-services could be their possible delivery through municipal websites in a unified manner, with unified forms, templates and guidelines that describe the procedure for obtaining the relevant e-service.

- Participants shared the view that, irrespective of the level of sophistication of the e-services offered by municipalities, there are municipalities which, in spite of offering e-services of lower sophistication, that is, only download and completion of forms which users later send to the municipality in electronic form or submit in hardcopy to the municipal archive or service desk, the cases are processed fast, in full and efficiently, so that citizens get the best possible service. Such an example was given by several participants and concerned the submission of freedom of information requests which citizens are more frequently sending in electronic form, via e-mail. This allowed immediate referral to relevant sectors and departments within the municipality and responses within the shortest deadline possible by disclosing the full information requested.
- An excellent example of an e-service which users are able to obtain fully online concerns the mobile application “mCommunity” offered by the Municipality of Karposh, which allows users to communicate with the municipality and influence activities undertaken by the municipality. This application allows citizens to report particular problems online, to share proposals or raise particular civic initiatives, while the municipality, which is particularly suitable for this type of application, makes all reports publicly available with adequate indication of the status in respect of their processing to their successful resolution. Examples of this type of application that have been successfully implemented by municipalities in RNM were also present in the past. One such application was the mobile application “See, Report, Repair”, implemented by municipalities such as Kisela Voda, Gazi Baba and Aerodrom in 2013, but removed shortly afterwards. It seems that these types of applications were perceived as a great burden for the municipal leadership and administration because they seriously overburdened them with problems and requests for which they needed to

2 This research study does not take into consideration the categorization of online sophistication for e-services whereby the highest level concerns the category of “personalized” e-services. Based on the current digitalization status with respect to municipalities and their e-services, this research believes that personalization is an unrealistically high level to be expected in RNM and therefore the highest level taken into consideration implies that the municipalities allow their users full online transaction as part of their e-services, that is, allowing electronic application for specific service with all necessary documents attached, including possible electronic payment of administrative fees and receipt of the service’s final outcome (decision, certificate, permit, etc.) in electronic form.

demonstrate greater commitment because citizens had direct insight into how and in what period of time problems were actually being resolved. On the other hand, the involvement of citizens in the resolution of their problems, allowed by this type of application, should motivate them to exert greater pressure on the municipalities to enrich their offer in terms of e-services.

- A positive step in the use of municipal e-services was noted during the Covid-19 pandemic, when several municipalities across the country and the City of Skopje implemented campaigns subsidising the procurement of bikes and inverter air-conditioners, as well as chimney cleaning services, with applications for such services being fully submitted and processed online, including scanning and electronic submission of all documents needed.
- Participants in the focus group emphasised that most municipalities in RNM are striving to be closer to their citizens and therefore they make efforts to engage in digital communication with the local population and provide electronic application and delivery of municipal services. Although the municipalities often publish information based on a selection of the content they consider interesting for citizens or material aimed at promoting their activities and achievements, still, under pressure from the local public, municipalities also offer other information or e-services requested by citizens themselves. A positive example is seen in the online streaming of sessions held by municipal councils, as practiced by several municipalities, which greatly contributes to their transparency. Sometimes, it seems that municipalities start delivery of a particular e-service for the purpose of keeping in step with certain trends or positive practices, such as, for example, the e-service “report a problem”, but if the motivation for the introduction of new services does not concern the improvement of services for citizens in general, these e-services are soon abandoned or become e-services delivered in an incomplete or irregular manner.

Disadvantages of delivery of e-services by municipalities in RNM

- Participants in the focus group believe that municipalities have not defined indicators to measure their performance in the implementation and delivery of their e-services and the quality of such services and do not assess the situation with respect to the use and effects of the e-services offered.
- Municipalities do not implement the process for the introduction of e-services in a planned way. Short-term and/or long-term plans are not developed for e-services and digitalization, which could be developed with the involvement of all stakeholders at local level. Such plans should anticipate all restrictions and risks from the introduction and maintenance of e-services, capacity building for the local government in terms of e-service design and delivery, but also capacity building for users with respect to the utilization of such services. Maybe the most important aspect that should be covered by these plans is the method for ensuring regular updates and comprehensiveness of each and every e-service offered, that is, to ensure their sustainability.
- There are serious limitations to the use of e-services provided by municipalities because they are often offered in one language and when offered in several languages, the quality of such e-services is often different in the different languages offered. Usually, municipalities justify this situation by citing limited resources (human, financial, etc.).
- Oftentimes, the use of e-services is accompanied by complex and insufficiently explained procedures, which create difficulties for citizens and prevent them from using a particular e-service. This is particularly evident among people with low computer literacy or poor digital skills (usually elderly people). Therefore, each municipality must provide digital infrastructure and relevant advisory services at their premises, where users that do not have opportunity or, due to any other reason, are prevented from using the required service electronically could get assistance from employees or external associates (high-school or university students, on a voluntary basis, or with another model chosen by the municipality).

- The complexity of procedures for some e-services is sometimes a result of particular legal obligations that must be followed, but it seems that more often than not these are a result of lack of capacity at the municipality to conduct quality mapping and to optimise the process for e-service delivery. Another important aspect rarely given necessary attention by municipalities concerns the fact that, prior to designing any technical solution for the delivery of a particular e-service, they need to conduct a quality and comprehensive business analysis and that such analysis should not mirror the situation in respect of delivery of the particular service in the traditional manner (with physical presence, at service desks within the municipality), but should cover optimisation of business processes, with due consideration to opportunities offered by digital technologies.
- Another disadvantage of the e-services offered by municipalities in RNM is their insufficient promotion with the public or poor organization of the content hosted on the official websites of municipalities. This leads to e-services not being easily located, because users do not know they are available or are located where users usually do not expect them. When promoting their e-services, municipalities must take into consideration marketing and communication channels that are most often used by target audiences, which should be familiarized with e-services, and should plan their promotional activities accordingly.
- In the cases where delivery of a particular municipal e-service necessitates the involvement of another institution at local or central level, there are no clear guidelines as to who should take responsibility, or how, for the implementation of ICT interoperability between institutions.
- Municipalities have not implemented electronic payment for certain e-services when administrative fees must be paid by users. Instead, various fees and charges are paid via banks or at service desks in the municipality via point-of-service (POS) terminals.

Setting priorities for future e-services and mandatory e-services

- According to focus group participants, municipalities must set priorities about which new municipal services will be provided electronically.
- When setting such priorities, municipalities must primarily be led by the citizens' expectations and demands. An additional criterion in terms of setting priorities for the introduction of future e-services concerns a cost-benefit analysis for individual e-services. Another criterion which municipalities must take into consideration in setting priorities for the development of future e-services concerns benefits for the municipality, that is, the introduction of new e-services that are used by the highest number of users and offer significant opportunity for cost reduction after they are introduced as an e-service in the municipality.
- Moreover, focus group participants discussed whether certain e-services should be delivered only electronically or if multiple methods for service delivery should be allowed. Opinions were equally divided around the issue of whether the state should deliver certain services only in electronic form, but not in the traditional manner as well.
 - Those advocating for the dual model of service delivery based their opinion on the low capacity of municipalities and of their citizens for application of the concept of e-services. Hence, they believe that citizens should still have the opportunity to obtain services at municipal desks, but also as e-services. Templates, except for being downloaded from the municipality's website, should also be available in hardcopy at the municipal archive. For both types of service delivery, there is an opportunity for users that needed assistance in the procedure to be able to receive such assistance. In both cases the description of relevant procedures should be easily understandable and available.
 - The other half of the focus group participants advocated for services in the future to be offered only as e-services, with the possibility for full online transaction and indicated the need for engagement of much greater resources (human, financial, spatial, time, etc.) as in the case of dual modality for service delivery as their main argument. Moreover, municipal administrations

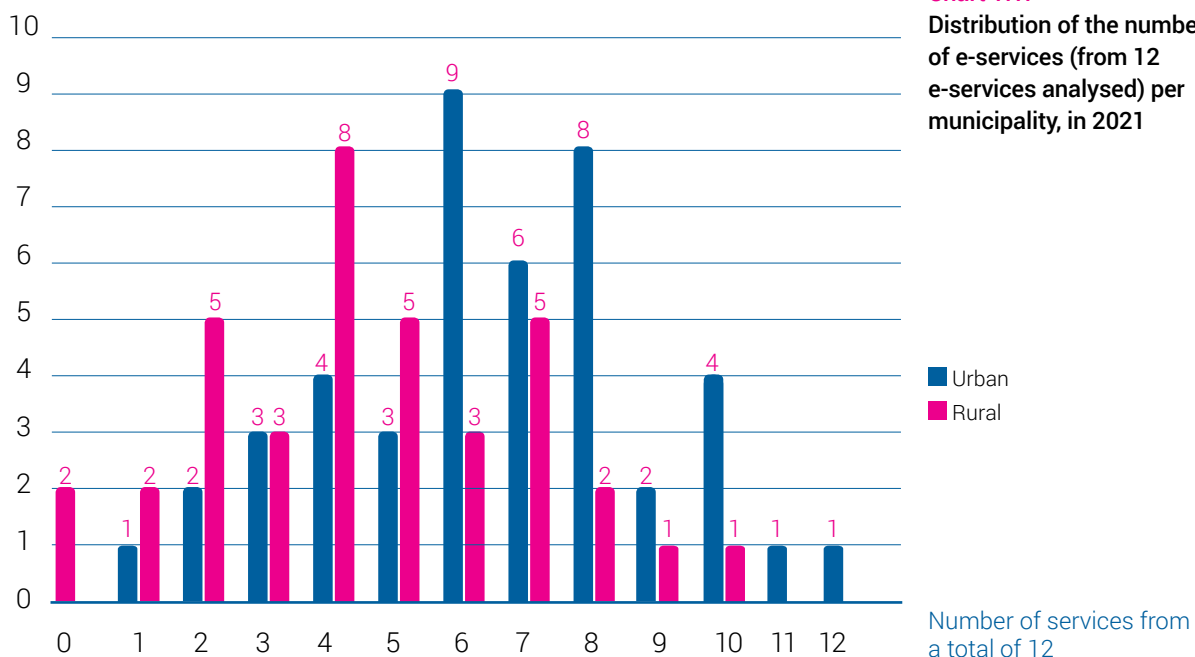
would face serious challenges with two channels of service delivery, such as dilemmas about the time in which cases received in electronic form should be processed and the time when cases related to the same service, but submitted in the traditional manner, with physical presence at the municipal archive or relevant service desk, should be processed. Indicators obtained from several municipalities with respect to a significant increase of applications for services once they have become available in electronic form (in some cases, this increase was five times higher) further support the need for the introduction of electronic only delivery of services. In the case of service delivery only as e-services, municipalities must secure a so-called single point of service, where every citizen who, due to any reason is unable to individually start the procedure for a certain service, can obtain assistance from municipal employees. In this way, citizens are actually using the service in the traditional manner, while their cases are immediately entered into the e-system by the municipality.

Analysis of the online monitoring

As shown on Chart 1.1, up to now, only one municipality (Kriva Palanka) provides all 12 e-services covered by this analysis, with due care to complete and regular updates, and one municipality offers as many as 11 e-services (Delchevo).

These two municipalities are categorized as urban municipalities. Among rural municipalities, the highest number of e-services is offered by one municipality (Debarca) and they account for 10 from the total of 12 e-services monitored. Two rural municipalities (Arachinovo and Chucher Sandevo) do not offer any of the 12 e-services analysed, while provision of only one e-service is noted in one urban municipality (Saraj) and two rural municipalities (Tearce and Vrapchishte).

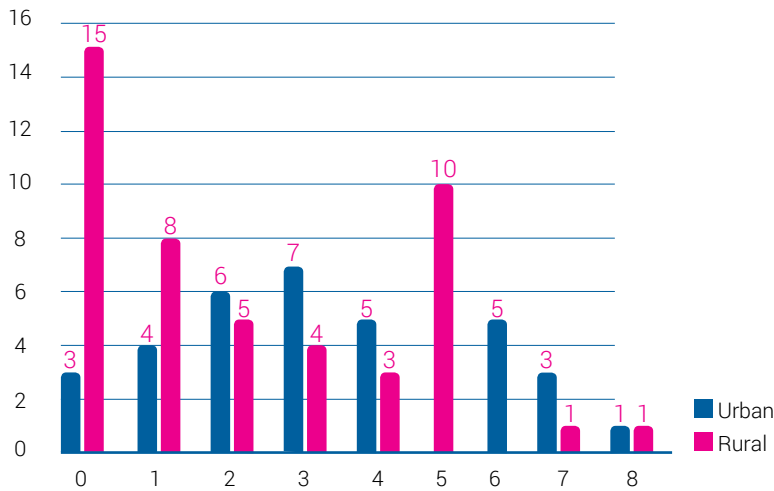
Number of municipalities



Source: online monitoring conducted for the purpose of this research

Most municipalities offer between four and eight from the total of 12 e-services analysed. The average number of e-services offered by municipalities is calculated

at 5.6, whereby the average number of e-services among urban municipalities stands at 6.5, while the average number among rural municipalities stands at 4.5.



Source: MLSG (2015)

Chart 1.2
Distribution of the number of e-services offered (from 11 e-services analysed) per municipality, in 2014

According to the research conducted in 2014, as shown on Chart 1.2, at that point in time most municipalities offered between zero (18 municipalities, 15 of which were rural and 3 urban) and five e-services (10 municipalities, all of which were urban), with no municipalities offering 10 or all 11 e-services analysed. The average number of e-services delivered by municipalities in 2014 stood at 2.8 from the total of 11 e-services analysed. The average number of e-services among urban municipalities was calculated at 3.8, while the average number for rural municipalities was 1.6.

Compared to the 2014 results, the average number of e-services delivered by municipalities in 2021 increased by 100%, and this increase is much higher among rural municipalities (81.3%) compared to growth observed among urban municipalities (71.1%).

Chart 2.1 shows the number of municipalities that do not offer an adequate number of e-services from the total of 12 e-services analysed. Concerns are raised by the fact that as many as five rural municipalities do not offer 10, 11 or 12 e-services (Plasnica, Zelenikovo, Arachinovo, Vrapchishte and Chucher Sandevo), that is, they do not offer them in a manner that demonstrates commitment to regular and complete provision of services for users.

Number of municipalities

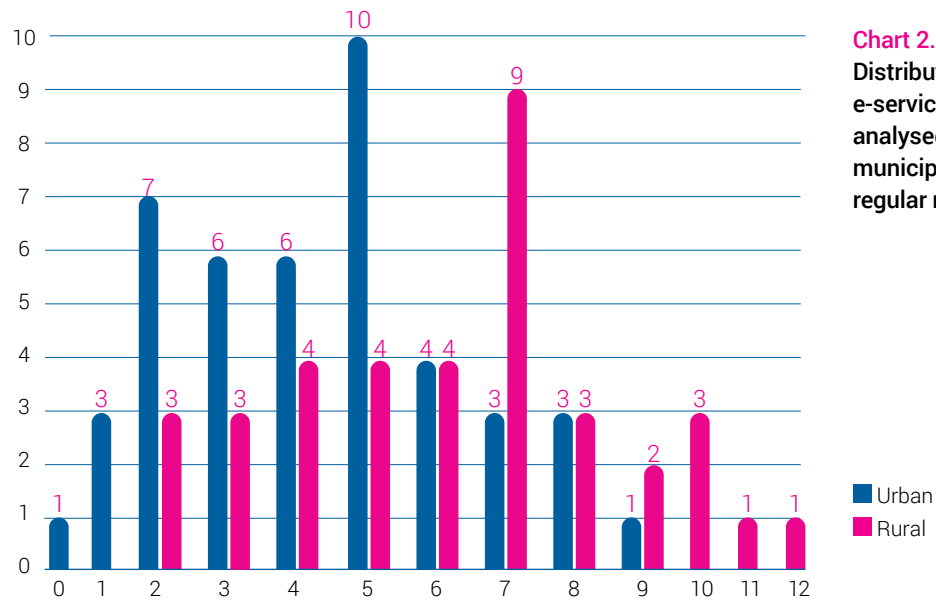


Chart 2.1
Distribution of the number of e-services (from 12 e-services analysed) NOT offered by municipalities in a complete and regular manner, in 2021

Number of e-services that do not exist from a total of 12

Source: online monitoring conducted for the purpose of this research

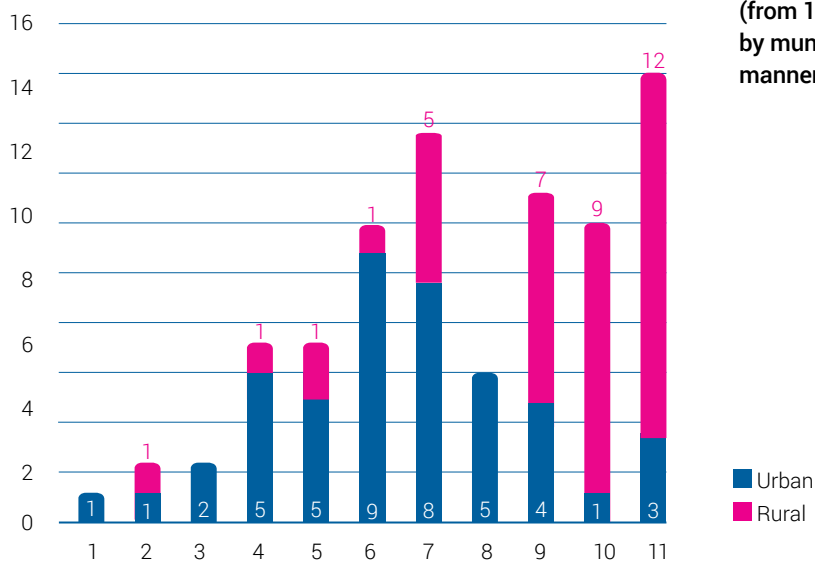
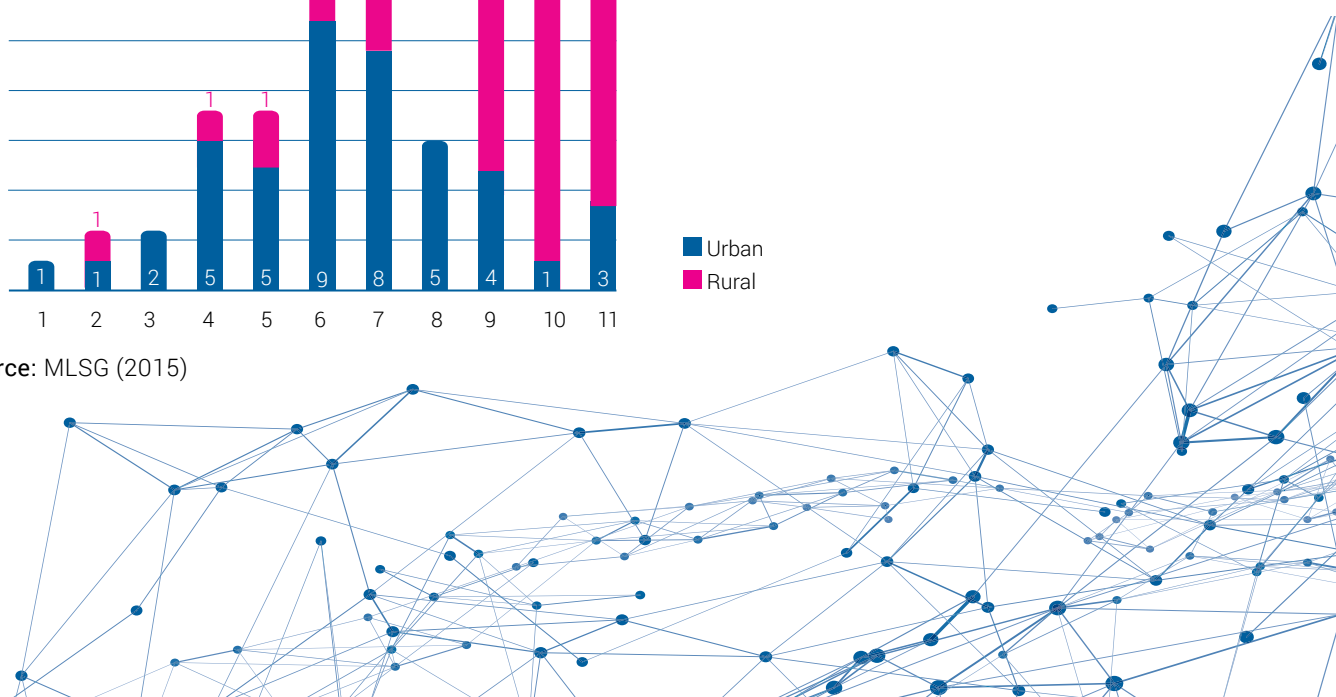


Chart 2.2
Distribution of the number of e-services (from 11 e-services analysed) NOT offered by municipalities in a complete and regular manner, in 2014

Source: MLSG (2015)



Most municipalities do NOT offer between two and seven from the total of 12 e-services analysed, that is, they do not offer them with due care for these services to be completely and regularly updated. The average number of services NOT offered by municipalities from the total of 12 e-services analysed is 5.2, whereby the average number of e-services not offered among urban municipalities stands at 4.3, while the average number among rural municipalities is 6.3.

The research conducted in 2014 and results thereof are shown in Chart 2.2 and provide the conclusion that, at that point in time, more than half of municipalities (50.6%) did not offer regular or complete e-services in the range from eight or more from 11 e-services analysed.

The average number of e-services NOT offered by municipalities in 2014 accounted for 7.7 from a total of 11 e-services analysed. The average number among urban municipalities was calculated at 6.4, while the average number among rural municipalities was 9.1.

Compared to the 2014 results, the average of e-services NOT offered by municipalities in 2021 has decreased by 32.5%, and this decrease has been higher among urban municipalities (32.8%) compared to the decrease observed among rural municipalities (30.8%).

Table 1.1 provides an overview of the number of municipalities that offer an adequate number of e-services, but delivered in an **incomplete or irregular manner**.

Table 1.1

Distribution of incomplete/irregular e-services offered by municipalities, in 2021

Number of incomplete/irregular e-services	Municipalities		
	urban	rural	total
0	12	11	23
1	16	12	28
2	10	9	19
3	5	5	10
4	1		1
Total	44	37	81

Source: online monitoring conducted for the purpose of this research

Table 1.2

Distribution of the number of incomplete/irregular e-services offered by municipalities, in 2014

Number of incomplete/irregular e-services	Municipalities		
	urban	rural	total
0	20	27	47
1	16	9	25
2	6		6
3	2	1	3
Total	44	37	81

Source: MLSG (2015)

In the case of one urban municipality (Struga), as many as four from a total of 12 e-services analysed under this research are offered for local citizens as **non-updated**, that is, they are **incomplete or irregular**, while 10 municipalities - five urban (Gazi Baba, Saraj, Centar, Kichevo and Resen) and five rural (Dolneni, Krivogashtani, Novo Selo, Studenichani and Chashka) - do not ensure regular delivery of three e-services. Out of the 81 municipalities, irregularities such as out of date or incomplete information were observed in all but 23 (28.4%) of them.

The research conducted in 2014 and results thereof are shown in Table 1.2 and provide the conclusion that, at that point in time, more than half of all municipalities in RNM (47 from total of 81 municipalities), accounting for a share of 58%, took care of the reliability of e-services they offered and therefore did not have any incomplete or irregular services. Unlike the situation observed in 2014, in 2021 municipalities demonstrated lower performance in respect of causing inconvenience to users by providing incomplete or irregular e-services, and therefore they offered some e-services in spite of being unable to ensure their regular or timely delivery.

Table 2 shows the frequency of all indicators for 12 e-services that were analysed.

Table 2

Descriptive statistics for all indicators, in 2021 and 2014

	Descriptive statistics N=81		Descriptive statistics N=44 1=urban		Descriptive statistics N=37 0=rural	
	2021	2014	2021	2014	2021	2014
Indicator 1						
Frequency (%)						
1=exist	40.7	21.0	50.0	34.1	29.7	5.4
0=don't exist	49.4	72.8	36.4	54.5	64.9	94.6
0.5=incomplete/irregular	9.9	6.2	13.6	11.4	5.4	0.0
Indicator 2						
Frequency (%)						
1=exist	55.6	25.9	65.9	43.2	43.2	5.4
0=don't exist	28.4	61.7	15.9	45.5	43.2	81.1
0.5=incomplete/irregular	16.0	12.3	18.2	11.4	13.5	13.5
Indicator 3						
Frequency (%)						
1=exist	72.8	35.8	75.0	45.5	70.3	24.3
0=don't exist	13.6	64.2	11.4	54.5	16.2	75.7
0.5=incomplete/irregular	13.6	0.0	13.6	0.0	13.5	0.0
Indicator 4						
Frequency (%)						
1=exist	67.9	35.8	72.7	54.5	62.2	13.5

0=don't exist	23.5	55.6	15.9	38.6	32.4	75.7
0.5=incomplete/irregular	8.6	8.6	11.4	6.8	5.4	10.8
Indicator 5						
Frequency (%)						
1=exist	58.0	30.9	68.2	45.5	45.9	13.5
0=don't exist	35.8	66.7	27.3	50.0	45.9	86.5
0.5=incomplete/irregular	6.2	2.5	4.5	4.5	8.1	0.0
Indicator 6						
Frequency (%)						
1=exist	34.6	21.0	43.2	27.3	24.3	13.5
0=don't exist	63.0	77.8	54.5	72.7	73.0	83.8
0.5=incomplete/irregular	2.5	1.2	2.3	0.0	2.7	2.7
Indicator 7						
Frequency (%)						
1=exist	35.8	22.2	45.5	25.0	24.3	18.9
0=don't exist	37.0	66.7	34.1	56.8	40.5	78.4
0.5=incomplete/irregular	27.2	11.1	20.5	18.2	35.1	2.7
Indicator 8						
		NA		NA		NA
Frequency (%)						
1=exist	53.1		65.9		37.8	
0=don't exist	35.8		25.0		48.6	
0.5=incomplete/irregular	11.1		9.1		13.5	

Indicator 9						
Frequency (%)						
1=exist	56.8	42.0	63.6	56.8	48.6	24.3
0=don't exist	35.8	55.6	29.5	40.9	43.2	73.0
0.5=incomplete/irregular	7.4	2.5	6.8	2.3	8.1	2.7
Indicator 10						
Frequency (%)						
1=exist	19.8	17.3	27.3	25.0	10.8	8.1
0=don't exist	64.2	81.5	54.5	72.7	75.7	91.9
0.5=incomplete/irregular	16.0	1.2	18.2	2.3	13.5	0.0
Indicator 11						
Frequency (%)						
1=exist	51.9	22.2	56.8	18.2	45.9	27.0
0=don't exist	48.1	70.4	43.2	68.2	54.1	73.0
0.5=incomplete/irregular	0.0	7.4	0.0	13.6	0.0	0.0
Indicator 12						
Frequency (%)						
1=exist	11.1	3.7	15.9	4.5	5.4	2.7
0=don't exist	84.0	92.6	77.3	88.6	91.9	97.3
0.5=incomplete/irregular	4.9	3.7	6.8	6.8	2.7	0.0

Source: online monitoring conducted for the purpose of this research and MLSG (2015)

Services that are most frequently offered by municipalities

Analysis of relevant indicators provides the conclusion that the most represented e-service among municipalities in RNM from the total of 12 e-services analysed concerns the *publication of the budget for the current year* (indicator I3), as published by 72.8% of all municipalities. Next in frequency are services related to the *publication of minutes and decisions from the last municipal council sessions* (indicator I4) and *e-forms for reporting problems* (indicator I5), which are offered by 67.9% and 58.0% of municipalities, respectively.

Most frequently offered e-services among urban municipalities include: *publication of the budget for the current year* (indicator I3) with a frequency of 75.0%, followed by *publication of minutes and decisions from the last three municipal council sessions* (indicator I4), with a frequency of 72.7%. The third most frequent e-service concerns *e-forms for reporting problems* (indicator I5), as offered by 68.2% of urban municipalities.

In the case of rural municipalities, the first two most frequently offered e-services are the same as those in urban municipalities, that is, *publication of the budget for the current year* (indicator I3), offered by 70.3% of them, and *publication of minutes and decisions from the last three municipal council sessions* (indicator I4), with a frequency of 62.2%. The third most frequently offered e-service concerns *application for issuance and monitoring of construction permits* (indicator I9), available in almost half of rural municipalities (48.6%).

It could be established that, in 2021, the most frequently available e-service among municipalities in RNM (*publication of the budget for the current year* (indicator I3)), as observed with 72.8% of them, is significantly more frequent compared to the most frequently provided e-service in 2014 (*application for issuance and monitoring of construction permits* (indicator I9)), offered in 42.0% of all municipalities.

Services that are least frequently offered among municipalities

The least frequent e-service among all municipalities in RNM concerns *electronic application for B integrated environmental permit* (indicator I12), which is not offered by as many as 84.0% of municipalities (actually, this e-service is available only on the websites of nine municipalities, two of which are rural and seven urban), followed by *forms for property tax return* (indicator I10), with a frequency of 64.2%, and *possibility of posing questions to the mayor* (indicator I6), with a frequency of 63.0%.

The least present e-services among urban municipalities include: *electronic application for B integrated environmental permit* (indicator I12), which is not offered by 77.3% of them, followed by *forms for property tax return* (indicator I10) and *possibility of posing questions to the mayor* (indicator I6), each accounting for a frequency of 54.5.0% among urban municipalities.

The same three e-services are also the least offered services among rural municipalities, with the only difference that, unlike the situation observed among urban municipalities, the frequency of these e-services is even lower among rural municipalities. Namely, *electronic application for B integrated environment permit* (indicator I12) is not available in 91.9% of rural municipalities, *forms for property tax return* (indicator I10) is not available in 75.7% of them, and *possibility of posing questions to the mayor* (indicator I6) is not offered by 73.0% of all rural municipalities.

As is the situation in 2021, the same group of e-services was the least represented in 2014, but with higher values under the relevant indices, that is, these e-services were not available in more municipalities across the country.

Services delivered in an incomplete or irregular manner

The analysis of 12 e-services delivered by municipalities to their citizens showed that a significant number of municipalities offer services that are either incomplete in terms of information, procedure or forms, or they are irregular on other grounds. Such services are very harmful for the overall process of digitalization in municipalities and for increased use of e-services at local level by citizens and businesses. Namely, users do not know whether certain information offered by the municipality as part of a specific e-service is missing, incorrect or obsolete, which could cause them great inconvenience, loss of time and, often, financial loss. Authors of this research, and many other research studies on this topic, have indicated that it is much better for a particular e-service not to be offered when its provision cannot be completed in an impeccable manner and to the best satisfaction of the user.

More than one quarter of all municipalities (27.2%) provide the e-service *availability of e-mail contacts for municipal officers* (indicator I7) in an incomplete or irregular manner, that is, they provide information on e-mail contacts for only some municipal officers, or addresses provided are incorrect. The next least regular e-services, as observed in 16.0% of municipalities, concern *publication of public procurements* (indicator I2) and *forms for property tax return* (indicator I10). Only the e-service *publication of employment calls* (indicator I11) is not observed as being incompletely or irregularly offered by municipalities, that is, municipalities in RNM either offer this service in a timely manner and with all information necessary or they do not offer it at all.

Among urban municipalities, the most irregular or incomplete e-service concerns *availability of e-mail contacts for municipal officers* (indicator I7), as observed in 20.5% of them. The next most frequently incomplete or irregular e-services, as observed with 18.2% of municipalities, concern *publication of public procurements* (indicator I2) and *forms for property tax return* (indicator I10).

The situation among rural municipalities with respect to the most irregular or incomplete e-services is similar. The most frequently incomplete or irregular e-service concerns *availability of e-mail contacts for municipal officers* (indicator I7), as observed in as many as 35.1% of rural municipalities, followed by *publication of public procurements* (indicator I2), *publication of the budget for the current year* (indicator I3), *access to public information* (indicator I8) and *forms for property tax return* (indicator I10), each accounting for a frequency of 13.5%.

As in 2021, e-services related to *publication of public procurements* (indicator I2) and *availability of e-mail contacts for municipal officers* (indicator I7) were the most frequently observed incomplete and irregular e-services in 2014. Unlike the current situation, among all e-services offered by municipalities in 2014, only the e-service related to *publication of the budget for the current year* (indicator I3) was offered regularly and with all information necessary or was not available at all.

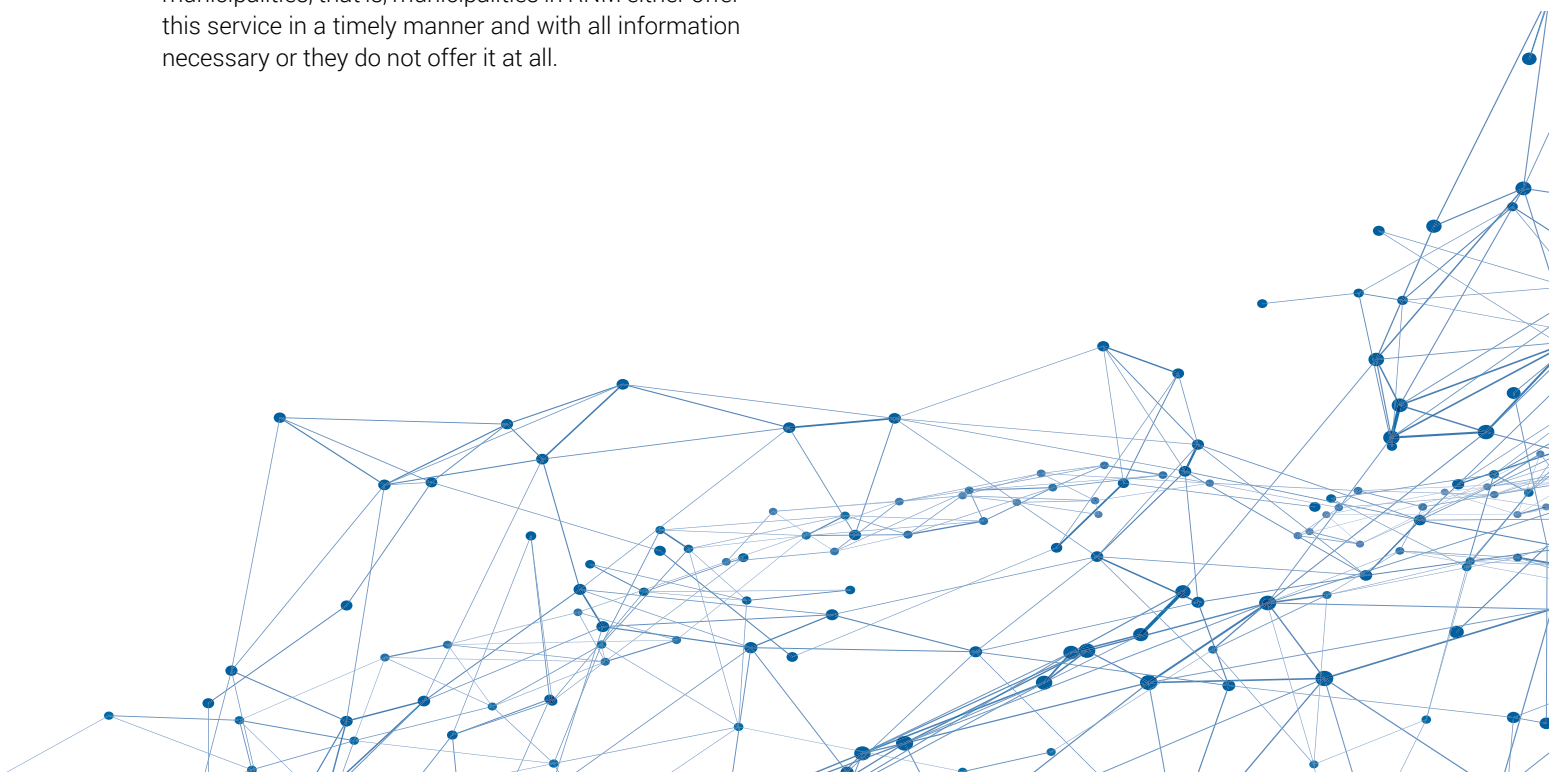


Table 3 provides an overview of maximum/minimum and median values under the three indices (I_{TR} , I_{CO} and I_{AP}), including the measure of deviation, that is, distribution of values relative to the average value.

Table 3

Descriptive statistics for Indices ITR, ICO and IAP, in 2021 and 2014

	Descriptive statistics N=81		Descriptive statistics N=44 1=urban		Descriptive statistics N=37 0=rural	
	2021	2014	2021	2014	2021	2014
I1+I2+I3+I4						
Minimum	0	0	0	0	0	0
Maximum	4	4	4	4	4	3
Frequency (%)						
0	7.4	37.0	4.5	13.6	10.8	64.9
1	23.5	25.9	18.2	27.3	29.7	24.3
2	16.0	22.2	15.9	34.1	16.2	8.1
3	30.9	11.1	31.8	18.2	29.7	2.7
4	22.2	3.7	29.5	6.8	13.5	0.0
kTR for ITR						
Minimum	0	0	0	0	0	0
Maximum	3	2	3	2	3	2
ITR						
Minimum	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
Maximum	4	4	4	4	4	3

Mean	2.32	1.16	2.58	1.74	2.02	0.46
Std. dev.	1.30	1.17	1.26	1.13	1.28	0.77
I5+I6+I7+I8						
Minimum	0	0	0	0	0	0
Maximum	4	3	4	3	4	3
Frequency (%)						
0	17.3	51.9	9.1	36.4	27.0	70.3
1	24.7	28.4	15.9	38.6	35.1	16.2
2	25.9	13.6	29.5	15.9	21.6	10.8
3	23.5	6.2	34.1	9.1	10.8	2.7
4	8.6	NA	11.4	NA	5.4	NA
kCO for ICO						
Minimum	0	0	0	0	0	0
Maximum	2	1	1	1	2	1
ICO						
Minimum	-0.1	-0.1	-0.1	-0.1	-0.1	0
Maximum	4	3	4	3	3	3
Mean	1.77	0.73	2.19	0.95	1.26	0.45
Std. dev.	1.24	0.92	1.15	0.97	1.16	0.79

I9+I10+I11+I12						
Minimum	0	0	0	-0.1	0	0
Maximum	4	3	4	3	3	3
Frequency (%)						
0	19.8	45.7	13.6	31.8	27.0	62.2
1	37.0	27.2	34.1	31.8	40.5	21.6
2	29.6	23.5	31.8	36.4	27.0	8.1
3	11.1	3.7	15.9	0.0	5.4	8.1
4	2.5	0.0	4.5	0.0	0.0	0.0
kAP for IAP						
Minimum	0	0	0	0	0	0
Maximum	2	2	2	2	2	1
IAP						
Minimum	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1
Maximum	4	3	4	2	2	3
Mean	1.37	0.84	1.60	1.02	1.08	0.62
Std. dev.	1.01	0.90	1.06	0.83	0.86	0.96

Source: online monitoring conducted for the purpose of this research and Bountalis et al. (2015)

The median values under all three indices created on the basis of 12 e-services offered by municipalities in RNM are as follows: $I_{TR} = 2.32$, $I_{CO} = 1.77$ and $I_{AP} = 1.37$. Having in mind that the maximum value for each and all indices is calculated at 4, it could be said that all municipalities have a lot of room for improving their e-services under all three functions whose quantitative indicators are translated into relevant indices. The median values for urban municipalities under all three indices are: $I_{TR} = 2.58$, $I_{CO} = 2.19$ and $I_{AP} = 1.60$, while in the case of rural municipalities, they are somewhat lower: $I_{TR} = 2.02$, $I_{CO} = 1.26$ and $I_{AP} = 1.08$. In the future, both types of municipalities need to pay special attention to the promotion of e-services that comprise I_{AP} – Index of Approvals/Permits, that is, e-services measures by indicators I9 to I12. Namely, e-services forming this index are of such a nature that makes them most favourable for increasing the level of sophistication, with the provision of e-services to citizens in a form that would allow full online implementation and completion of a full transaction between the user and the municipality. That could be achieved with joint investment by all or by most municipalities with the development of portals and applications that would deliver the relevant e-service for all municipalities and raise the level of sophistication to the category of “full online transaction”.

The research conducted in 2014 did not indicate any positive practices in RNM, that is, certain e-services were not developed jointly for all municipalities, with funds for their development, implementation and maintenance being secured by ZELS, international development organizations or from other sources. At the time, several portals and web applications developed in that manner (*information system for e-construction permit* www.gradezna-dozvola.mk and *portal for management of B integrated environmental permits and environment studies* <http://www.ekoloska-dozvola.mk>) were among the most used e-services offered by municipalities.

In the case of urban municipalities, two indices (I_{TR} and I_{CO}) are marked by a value that is slightly above the medium point of their maximum values, and therefore it could be said that these municipalities pay the greatest attention to transparency and accountability in their operation.

In the future, rural municipalities need to pay greater attention to the provision of e-services for their citizens

that pertain to the *communication* function (by offering and providing *e-forms for reporting problems, possibility of posing questions to the mayor, availability of e-mail contacts for municipal officers, access to public information*, as well as other e-services with related functions), but especially to those pertaining to the *approvals/permits* function (by offering e-services such as *applications for issuance and monitoring of construction permits, forms for property tax return, publication of employment calls and electronic application for B integrated environmental permits*).

Table 4
Growth of indices in 2021 compared to their value in 2014 (%)

Index	I_{TR}	I_{CO}	I_{AP}
Urban	48.3	130.5	56.9
Rural	339.1	180.0	74.2
Total	100.0	142.5	63.1

Source: online monitoring conducted for the purpose of this research and MLSG (2015)

Based on data presented in Table 4, which shows the increase in value of indices in 2021 compared to their value in 2014, it could be concluded that the highest increase, by 142.5%, is noted under Index I_{CO} , while the lowest increase, by 63.1%, is noted under Index I_{AP} . In the period between the two research studies, urban municipalities have greatly improved the situation in respect of the *communication* function (130.5%), while rural municipalities have made significant steps forward in promoting the *transparency and accountability* function (339.1%).

Analysis of standard deviation values under all three indices shows that the highest deviation from the median value is observed under the Index I_{TR} (std. dev. = 1.30), while most grouped values of individual municipalities around the mean value are noted in respect of the Index I_{AP} whose standard deviation is 1.01. The standard deviation of values under the Index I_{CO} accounts for 1.24.

In the case of urban municipalities, the highest standard deviation of value is noted under the Index I_{TR} (std. dev. = 1.26), while the lowest is noted under the Index I_{AP}

(std. dev. = 1.06). Among rural municipalities, the same indices show the highest and the lowest deviation from the mean value as those observed among urban municipalities, that is, the highest deviation is noted under the Index I_{TR} (std. dev. = 1.28), while the lowest deviation is noted under the Index I_{AP} (std. dev. = 0.86).

Compared to the research conducted in 2014, it could be established that, in 2021, standard deviations are higher under all indices, except for the Index I_{AP} which in 2014 had a smaller value compared to the currently calculated value for rural municipalities.

This could be a consequence of several reasons. One reason concerns the fact that the establishment, promotion and increase of e-services offered by municipalities, as well as their planned and organized maintenance, is perceived as a priority at different levels among municipalities. While some municipalities are much more committed than before, other municipalities have different priorities and do not keep pace with the others in the process of digital transformation, unlike the situation observed in the past when it seemed that all municipalities were equally committed to moving towards electronic services, albeit with variable success. Moreover, when it comes to priority setting in municipalities, the methodology applied for that purpose is disputable. There is an evident lack of knowledge among municipal administrations and leadership in terms of the multitude of methods for setting priorities, including those related to the development of e-services. One serious reason behind the major discrepancies among municipalities with respect to their offer of e-services concerns the lack of capacity and resources for the development and maintenance of such services. They lack both financial and human resource with the skills and knowledge needed for this subject matter. It is rare that any municipality has a planned approach to the e-services it provides, that is, there is almost no municipality in RNM engaging in the development of strategies and action plans for e-services and/or dig-

ital transformation. To make matters worse, it seems that the pressure from stakeholders, that is, citizens and companies, which should use the e-services provided by municipalities, is not strong enough. Moreover, it seems that citizens in rural municipalities, despite limitations in terms of physical contact during the Covid-19 pandemic that is ongoing for the second year in a row and that has strongly highlighted the benefits of e-services and digitalization in general, are more prone to visiting municipal premises to receive the services they need, be it in a traditional manner or in the form of an e-service for which they receive assistance from municipal administration employees.³ Most certainly, the preparedness and disposition of users to benefit from e-services offered by municipalities play a role, especially with respect to their preparedness in the sense of skills for handling e-services, possession of necessary ICT infrastructure or simply a matter of habit in visiting municipal premises to complete a certain activity. Nonetheless, when it comes to the delivery of e-services, municipalities need to put greater emphasis on the word "service", that is, "service to citizens and companies", and to refrain from acting as local power-players. Municipal e-services need to facilitate a better life for citizens and they need to be planned, developed, implemented and maintained for that purpose only.

This research included an analysis of several other functions available on official websites of municipalities in RNM and related to the e-services they offer:

3 A major role in such manifestations was played by the governmental portal www.uslugi.gov.mk, which was closed shortly after its introduction in 2005. This was due to several reasons, the most important one being a lack of good planning for regular and continuous updates and raising the level of sophistication to full online transactions. Also, examples of unpleasant experiences, accompanied by significant loss of time, funds or other negative aspects on account of incomplete descriptions of a particular e-service, its irregularity or, in some cases, erroneous guidelines for use, have deterred users from greater and or more extensive use of the e-services available. The damage caused by offering incomplete, outdated or inaccurate e-services has unforeseen consequences, in that there is a delayed effect in the form of reducing citizens' trust in e-services and in the benefits of the digital transformation of local government and of society as a whole.

1 Availability of open data on municipal websites.

The term “open data” implies data available in machine readable format, which can be used freely, shared, re-distributed and re-used by anybody, anywhere, and for any purpose (MISA, 2018). Such data are important for local self-government and communities as they enable and encourage independent analysis of local government information and policies by non-governmental organizations, business, the media and individuals. Hence, open data create new possibilities for a better understating of information published, by combining them with other datasets available, in order to obtain additional value and facts on local government policies, which leads to improved services for citizens (MISA, 2018).

An analysis of websites hosted by all municipalities shows that data in open format are offered by only 11 of them (13.6%), of which five (11.4%) are urban municipalities (Kavadarci, Prilep, Probishtip, Strumica and Shtip), and six (16.2%) rural (Vasilevo, Vevchani, Zrnovci, Lipkovo, Rosoman and Studenichani).

Datasets are published with two stars (data with documented metadata available online in machine readable format under open source license, which allows them to be reused), according to the model for open government data (MISA, 2018), such as excel (.xlsx) files; or with three stars (data with documented metadata available online, in open non-commercial computer format under open source license, which allows them to be reused), in CSV data format.

Datasets published by municipalities in the form of open data include:

- + budget revenue and expenditure;
- + registries of public enterprises;
- + registries of public institutions;
- + registries of primary schools;
- + registries of secondary schools;
- + registries of hospitality facilities;
- + registries of urban and neighbourhood communities;

- + composition of municipal councils;
- + municipal administration employees;
- + registries of municipal projects.

2 Possible involvement of local communities in the selection of new e-services to be introduced in the future.

A very important aspect of the digitalisation process in municipalities and the development of new services that will be offered electronically is the possibility for citizens to be consulted about what they believe is especially important to be offered as an e-service in the near future. Monitoring of the municipalities’ official websites allowed the conclusion that not a single municipality engages in systemic activities aimed at listening to the citizens’ needs with respect to which e-services should be implemented next.

3 Multi-language function on the municipalities’ official websites.

Analysis of all official websites provides the conclusion that among a total of 81 municipalities, 52 maintain their websites only in Macedonian, 1 municipality hosts its website only in Albanian, while 28 municipalities declare that they are hosting their respective websites in multiple languages.

Among these 28 municipalities, eight host websites in two languages (Macedonian and English), nine host websites in two languages (Macedonian and Albanian), one hosts its website in Macedonian and Turkish, eight municipalities host websites in three languages (Macedonian, Albanian and English), another one also hosts its website in three languages (Macedonian, Albanian and Turkish) and one municipality (Debarca) hosts its website in as many as nine languages (in addition to Macedonian, Albanian, Turkish and English, other languages represented include German, French, Serbian, Polish and Greek). It should be noted that a very small number of multi-language websites that offer e-services provide full and necessary information in an equitable manner for all languages offered.

Analysis of the online survey

The purpose of this survey was to obtain an indicative overview of the state-of-affairs with respect to the supply and demand of e-services at the level of local government in the state, that is, whether there is a gap between the citizens' expectations about which e-services should be offered by municipalities and those actually available, and how to address such a gap.

The online survey was completed by 147 respondents who are users of e-services provided by municipalities from all regions in RNM.

The majority of them, (84%) are not satisfied with the quality of services offered by the municipality where they live, and only 16% indicated satisfaction (Chart 3).

In addition, 39 respondents (26.5%) used the opportunity afforded to comment on their response and to provide an elaboration of their answer. The majority of them reported that they were completely dissatisfied with the quality of e-services in their municipalities. In their opinion, except for a very small number, e-services did not even exist, mainly because they understood e-services as full online transaction without the need to physically visit municipal premises. These respondents indicated that municipal employees were unavailable and did not respond to their telephone calls or e-mails. Moreover, respondents complained about municipal employees being disinterested in delivering quality services to citizens and that it frequently happened that citizens were referred from one to another service desk and from one to another municipal employee. In particular, citizens' expectations during the ongoing global health crisis caused by Covid-19 with respect to the promotion and increase of the number and the quality of e-services provided by local governments had not been fulfilled at all.

On the question of whether for a particular service to be perceived as a quality service it needed to be made fully available in electronic format, affirmative responses were obtained from 83% of respondents, while an insignificant 6% of them disagreed with this statement, and 10% did not have an opinion on this matter (Chart 4).

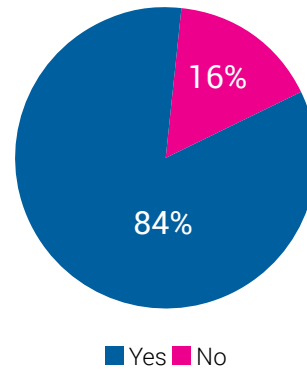
On this question, respondents were allowed to provide a more elaborate answer and their responses indicate the fact that e-services that could be fully completed online, from start to end, provided the greatest benefits for citizens in terms of saved time, finances, health etc. Moreover, these e-services facilitated communication

1

Are you satisfied with the quality of e-services in your municipality?

Chart 3

Respondents' satisfaction with the quality of e-services provided by municipalities



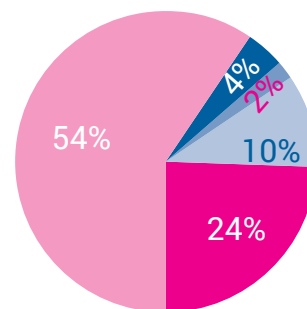
Source: online survey conducted for the purpose of this research

2

A quality e-service is only when it can be fully performed online

Chart 4

Quality e-services - fully online services



- Fully disagree
- Disagree
- Neither agree nor disagree
- Agree
- Fully agree

Source: online survey conducted for the purpose of this research

between the municipality and citizens, and they speeded up the resolution of problems and fulfilment of citizens' needs. In their opinion, it was important for users to know how much time it would take to obtain the result from a particular e-service (decision, certificate, response etc.) and whether services would be delivered quickly, within the shortest deadline possible. However, respondents also stressed that, in order to enable unhindered use of full online services without the need to visit municipal premises at a particular stage of the procedure or the need to send documents in hardcopy, citizens and local administrations needed to benefit from digital education, and digital infrastructure needed to be available to all.

According to 95% of respondents, a quality e-service was the one that provided accurate and full information on the procedure and relevant forms for utilization of such a service. Only 2% of all respondents did not share this opinion (Chart 5).

Respondents stressed that all e-services are not always adequately explained in clear and understandable language spoken by the local population. Hence, each e-service must be elaborated with comprehensive and accurate information about the overall procedure and all necessary forms (applications, templates) for use thereof. Also, a quality e-service offers the possibility for users to be able to monitor the status of each case, from initiation to final outcome, and this should be done by means of e-mail notifications, SMS, etc.

Opinions with respect to whether services offered by municipalities should be available only in electronic form or also offered in the traditional manner (hardcopy and/or at service desks) were divided. Nevertheless, one third of respondents (33%) fully agreed that services should be offered only in electronic form and not otherwise, and an additional 20% of them expressed agreement with this statement. On the other hand, 21% of respondents disagreed with this statement and 7% fully disagreed. They believed that, in addition to electronic form, municipalities should also offer their services in the traditional manner. 20% of respondents do not have an opinion on this matter (Chart 6).

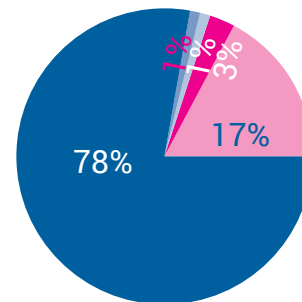
Those advocating for municipalities to continue offering their services in the traditional manner, in addition to e-services, said they have based this opinion on the fact that not all citizens, especially the elderly, have access to digital infrastructure and do not possess the necessary skills for the use of e-services. Moreover, this brings into question their style of living, which does not imply intensive use of digital technologies. Hence, in

3

A quality e-service is a service that provides accurate and complete information about the procedure and forms for use thereof

Chart 5

Quality e-services - accurate and complete information and forms



- Fully disagree
- Disagree
- Neither agree nor disagree
- Agree
- Fully agree

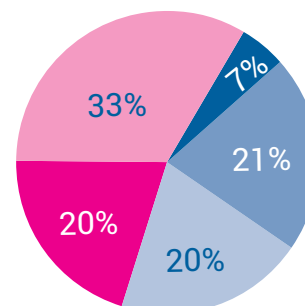
Source: online survey conducted for the purpose of this research

4

Municipal services should be provided only in electronic form, without also being delivered in the traditional manner

Chart 6

Services should be offered only in electronic form, but not in the traditional manner



- Fully disagree
- Disagree
- Neither agree nor disagree
- Agree
- Fully agree

Source: online survey conducted for the purpose of this research

their opinion, citizens should have the right of choice with respect to using municipal services in traditional or electronic form. If services are offered only electronically and municipalities do not offer assistance and support at their premises for elderly users of municipal e-services in their full capacity and potential, there is a danger of the emergence of interested parties which, by charging fees and under undefined circumstances, would perform transactions related to e-services on behalf of service users.

A high level of respondents (73%) believe that municipal services should be mandatorily (by the effect of law) offered in electronic form, while 13% of them indicated the opposite view (Chart 7).

Those that agree with this statement identify benefits offered by e-services in terms of time and money saved. At the same time, they believe that certain services, such as issuance of birth certificates, issuance of marriage certificates, citizenship certificates and the like, should be among the first services to be introduced as e-services with the possibility for full online transaction. In addition to the mandatory electronic system, some e-services could be also offered in the traditional manner, based on the choice of individual municipalities or other institutions at state level.

Opponents of this idea and those that abstained from answering the question believe that it is too early for such a measure, but that - in the future and after the population's digital literacy and infrastructure is improved - this could be done gradually. As regards to the mandatory introduction of e-services, the question was raised whether rural municipalities have sufficient capacity compared to those at the disposal of urban municipalities with respect to developing, delivering and maintaining mandatory e-services.

Less than half of respondents (46%) believe that citizens are given opportunities to participate in determining which municipal services will be offered electronically in the future, while 38% are of the opposite view (Chart 8).

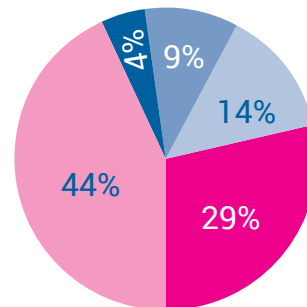
Respondents believe that, despite the fact that e-services are intended for them, municipalities do not make efforts to ask them which e-services they would like to have available. In particular, they said that municipalities alone determine which e-services will be developed next and that they do not consult citizens on this matter. The majority of respondents agreed that municipalities should introduce the practice of developing future e-services with citizens' involvement and asking citizens about their needs and demands in this respect.

5

Certain municipal services should be mandatorily (by effect of the law) offered in electronic form

Chart 7

Mandatory e-services



- Fully disagree
- Disagree
- Neither agree nor disagree
- Agree
- Fully agree

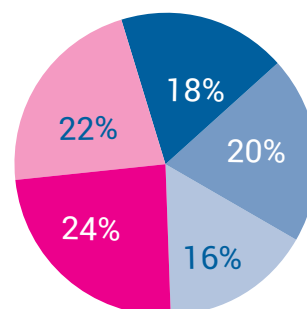
Source: online survey conducted for the purpose of this research

6

Citizens have opportunities to participate in determining which municipal services will be offered electronically

Chart 8

Citizens' involvement in the development of future e-services



- Fully disagree
- Disagree
- Neither agree nor disagree
- Agree
- Fully agree

Source: online survey conducted for the purpose of this research

On the other hand, 35% of respondents indicated that municipalities themselves should determine priorities about which municipal services should be digitalized next, and a high number of them (44%) believe that municipalities should not do this alone, but should involve other stakeholders, primarily citizens.

Those of the opinion that municipalities should determine priorities on their own support such claims with the fact that, in doing so, e-services that would be most used by citizens will be implemented first as they have requested them.

Only 55 respondents answered the question to indicate at least one municipal e-service they were satisfied with and elaborated on their answer (37.4% of all 147 respondents that participated in this online survey). As many as 32 of these 55 respondents (58.2%) indicated they were unable to single out any e-service. E-services with the highest satisfaction rate among respondents included: *e-taxes (payment of property tax)*, *e-construction permit*, *e-construction land*, *electronic reporting of problems*, *electronic posting of questions to the mayor and request for access to public information*.

Only 52 respondents answered the question to indicate at least one municipal e-service they were dissatisfied with and elaborated on their answer (35.4% of all 147 respondents that participated in this online survey). Of them, 26 respondents (50%) did not mention any specific e-service, but indicated dissatisfaction with all of them, reported that there are no e-services available in their municipalities or that services they needed from their municipalities are not delivered in electronic form. Some respondents are not satisfied with the manner in which their municipality provides e-services related to the payment of taxes, while others underlined e-services related to problem reporting, mainly because they have not received any feedback in respect of their cases.

Only 56 respondents (38.1%) answered the question to indicate at least one service they would like to be delivered electronically in their municipality, but which had not been available thus far. A large proportion of them asked for future digitalization of services that do not fall under the competence of local government, but institutions at central level, such as services provided by the Directorate of General Records and the like. As many as 13 respondents from this group (23.2%) requested digitalization of the service related to the payment of property tax, because this e-service is currently unavailable in their municipality, while eight respondents (14.3%) believe that all services falling under the

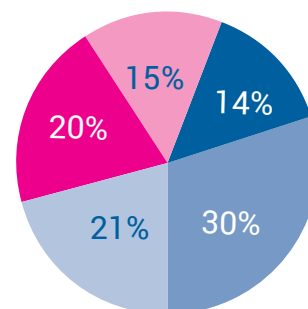
competency of local government should be offered in electronic form. The list of services that should be digitalized in the future includes: electronic reporting and monitoring of problems, change to and proof of address of residence, excerpts from urban plans, and on-line streaming of sessions held by municipal councils.

7

Priorities for the development of future e-services should be determined by the municipalities alone

Chart 9

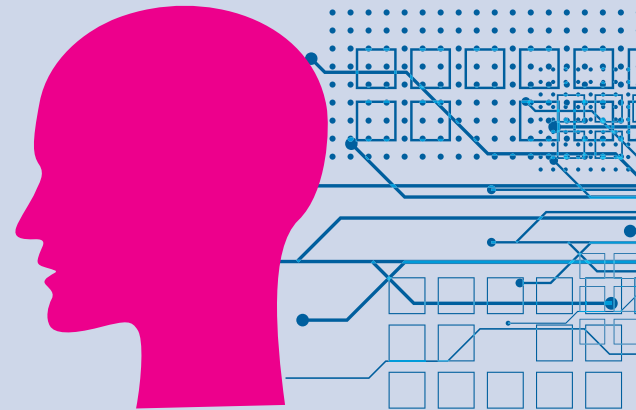
Priorities for the development of future e-services should be determined by the municipalities alone



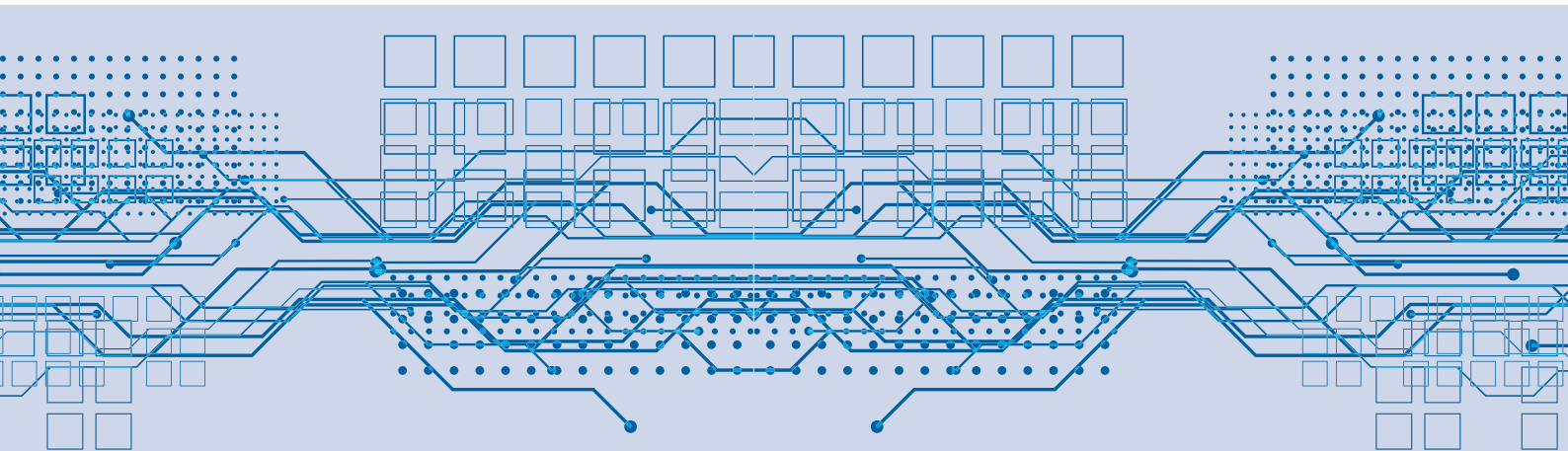
- Fully disagree
- Disagree
- Neither agree nor disagree
- Agree
- Fully agree

Source: online survey conducted for the purpose of this research

CONCLUDING OBSERVATIONS AND RECOMMENDATIONS



1. Users are mainly **dissatisfied** with e-services provided in their municipalities. Greater satisfaction was reported in respect of e-services offered with a higher level of online sophistication, that is, e-services that allow full online transaction and full electronic process.
2. Municipalities **do not develop short-term and/or long-term plans for e-services and digitalization**, which should be done with the participation of all stakeholders in e-services at local level. Municipalities should assume a **strategic approach** to enriching their offer with **new e-services**, with **the highest level of online sophistication** possible. At the same time, they should allow users to receive existing e-services in a fully electronic manner. For that, due consideration should be given to all digital platforms as possible channels for the delivery of municipal e-services, especially mobile devices because users of e-services most often possess such devices.
3. In addition to being marked by a high level of satisfaction among users, e-services that have been developed and maintained for municipalities under the leadership of ZELS and other institutions in the state also yield the best result and efficiency in terms of resources invested and benefits created. In the future, more efforts are needed for municipalities jointly **to develop and finance new e-services**, based on the competences they have, but also taking into consideration their specificities (urban or rural municipalities, different needs of citizens and business, etc.). Such initiatives should be translated into strategy and action plans for development and maintenance of joint e-services provided by municipalities and could be managed with **support from ZELS or the Ministry of Local Self-Government, in cooperation with the Ministry of Information Society and Administration** for the purpose of sharing experiences from the development and operation of the national portal uslugi.gov.mk.
4. E-services that will be developed by municipalities in the future should allow **users to monitor the status of their cases** at each stage of the procedure, by receiving notifications (for example: "your request no. KS23312 was received on 02.07.2021 at 14:23", "your application no. PE23444 is processed by the sector on urban planning and will be resolved by 24.07.2021 at the latest"). Each e-service must be mandatorily accompanied by a full description, including the maximum period of time needed for completion of the full transaction (especially when processing applications/requests that are part of a given e-service that lasts for several days due to the complexity of the procedure in question).
5. A particular e-service that ensures greatest transparency on the part of municipalities is **online streaming and availability of video recordings from sessions held by municipal councils**, which should be mandatorily provided. The platform for this service could be developed (secured) with support from MLSG and/or ZELS. Regular, accurate and timely publication of **agendas** for municipal council sessions, including **minutes** from these sessions that are easily available on official websites of municipalities is perceived as another indicator of their commitment to transparent and accountable operation, which does not require significant resources for implementation.
6. Municipalities must **measure and publish user satisfaction with their e-services and impact thereof**. The methodology and tools for such measurements could be developed with support from MLSG and/or ZELS.
7. Municipalities should work together and share resources in order to ensure delivery of their **e-services in multiple languages**.
8. Municipalities must provide space and digital infrastructure (the so-called **point of municipal e-services**) for users who do not have relevant conditions

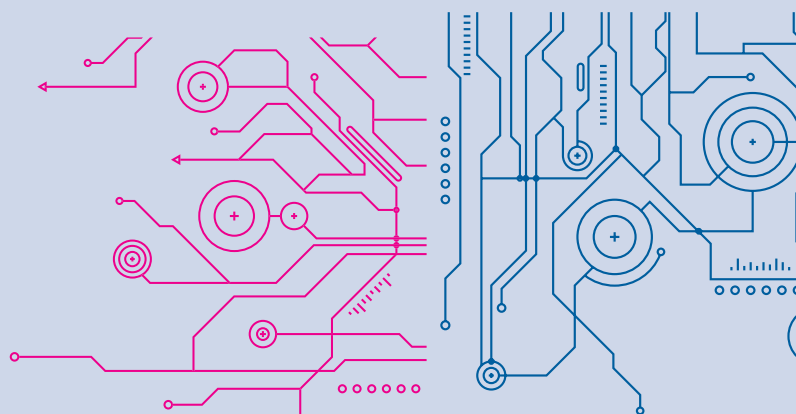


to benefit from e-services to be able to receive them at municipal premises, with assistance and support from persons assigned for that purpose (municipal employees or volunteers).

9. When developing new e-services, municipalities must **optimise business processes and streamline the procedures** for the delivery of e-services.
10. Municipalities should allocate a special budget item for the development and maintenance of e-services (**budget for e-services**) that allocates funds for expenses and the promotion of e-services.
11. As part of their plans for the development of future e-services, municipalities must determine the order of priority for their development and implementation. **In particular, priorities for new e-services should be defined on the basis of requests made by users (citizens and businesses).**
12. Compared to the situation observed in 2014, **the number of e-services offered by municipalities has increased by 100%** in 2021.
13. Compared to the situation observed in 2014, **the number of e-services that are offered as incomplete or irregular has also increased** in 2021. Offers of such services must be avoided and, in such cases, it is better for e-services not to be offered if the municipality is unable to deliver them in a wholly effective, accurate and updated manner.
14. The most irregular e-service offered by municipalities concerns *availability of e-mail contacts for municipal officers*.
15. Most municipalities offer the e-service related to *publication of the budget for the current year*, while the lowest number of them offer the e-service related to *electronic application for B integrated environmental permits*.
16. Municipalities most often provide e-services that stem from the Index of Transparency and Accountability.
17. Local communities, individuals, businesses and civil society should exert continuous **pressure on local self-government for the promotion of municipal e-services**.
18. Municipalities should promote and **publish data in open format**. Support for capacity building in respect of open data could be secured by MLSG and/or ZELS.
19. The introduction of e-services that imply full online transaction should be accompanied by gradual **abandonment of delivery of such services in the traditional manner** (hardcopy and/or at service desks), but only in the case when the municipality has secured adequate "point of municipal e-services" (see conclusion no. 8).
20. There are services which municipalities mandatorily provide (by the effect of law) in electronic form,⁴ and therefore other e-services could be introduced which municipalities should **mandatorily implement in their operations**. In that regard, it is particularly important for such services to be introduced carefully and in a well-planned manner, with enormous support and assistance to all municipalities by MLSG, ZELS, MISA and others, in order to avoid exposing municipalities to costs for e-service development and maintenance and in order to designate the status of mandatory e-service only to services which, due to certain aspects, are of the greatest importance.

4 Public procurements and use of www.e-nabavki.gov.mk is one such example.

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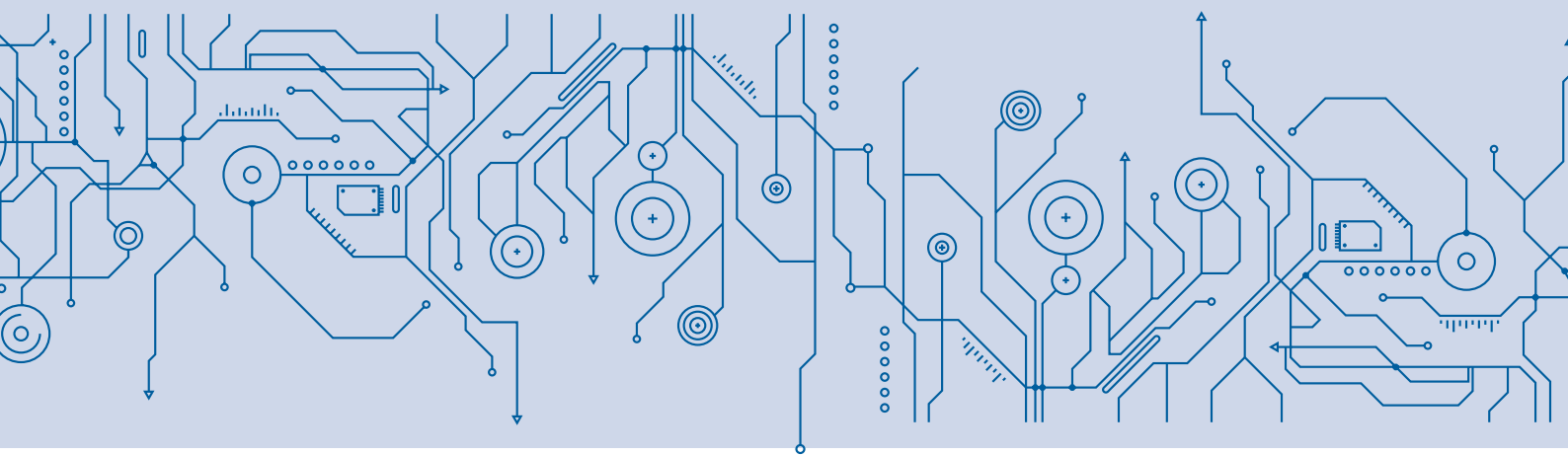
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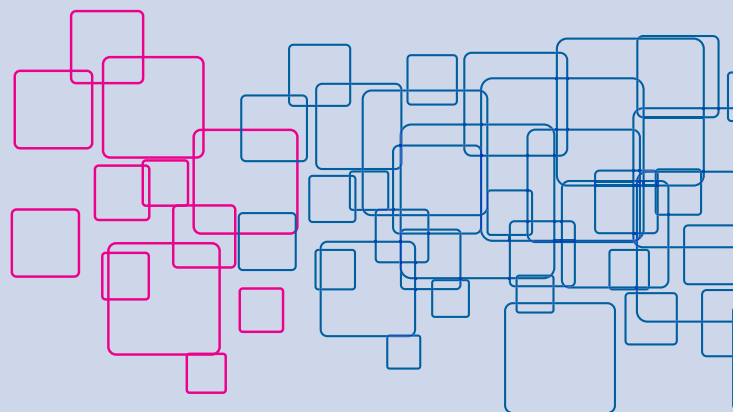
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ANNEX 1

Questionnaire for citizens: local self-government e-services



Please complete this questionnaire by selecting just one number with the meaning indicated on the scale below:

Fully disagree	Disagree	Neither agree nor disagree	Agree	Fully agree
1	2	3	4	5

1	Are you satisfied with the quality of e-services in your municipality?				
	<input type="checkbox"/>		<input type="checkbox"/>		
	YES		NO		
	Please comment: _____ _____				
2	Quality e-services are only those that can be fully performed online.				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fully agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Fully disagree (1)
	Please comment: _____ _____				

3	Quality e-services are those that provide accurate and full information on the procedure and forms for use thereof.				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fully agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Fully disagree (1)
4	Municipal services should be implemented as fully electronic services without being also provided in the traditional manner (hardcopy and/or at service desk).				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fully agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Fully disagree (1)
5	Certain municipal services should be mandatorily (by the effect of law) offered in electronic form.				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fully agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Fully disagree (1)
6	Citizens are given opportunities to participate in determining which municipal services will be offered in electronic form.				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fully agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Fully disagree (1)

	Priorities for next services to be digitalized should be determined by the municipalities alone .				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Fully agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Fully disagree (1)
	Please comment: _____ _____				
8	Indicate at least one municipal e-service that you are satisfied with and elaborate why: _____ _____				
9	Indicate at least one municipal e-service that you are dissatisfied with and elaborate why: _____ _____				
10	Indicate at least one service you would like to be delivered in electronic form, but is currently not: _____ _____				

Metamorphosis Foundation for Internet and Society is an independent, non-partisan and non-profit foundation based in Skopje, Republic of North Macedonia. Its mission is to contribute towards the development of democracy and towards increasing the quality of life through innovative use and sharing of knowledge. Our guiding values are openness, equality and freedom.

Programme areas covered by Metamorphosis are:

- + Media for Democracy
- + Education for Innovation
- + Social Accountability
- + Human Rights Online

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