THE USE OF DIGITAL SERVICES BY BULGARIA'S POPULATION: MAJOR PREREQUISITES, TRENDS AND REGIONAL DIMENSIONS

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Abstract: The digitalization of administrative processes and providing electronic services in Bulgaria has undoubtedly led to an increase of the administrative capacity not only of central but also of local organs of authority. At the same time, the differences in the levels of digital knowledge, skills and competences among Bulgaria's regions have caused a certain disturbance in the offered digital services. The article aims at presenting some major trends in the dynamics of selected indicators which reflect the development of digitalization in the public sector. A specific focus is placed on the regional dimensions of these processes, assuming that local authorities face much more serious challenges in this respect compared to central state organs.

Key words: digital services, public sector, regions, Bulgaria.

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Introduction

It is universally acknowledged that the digitalization of services provided by organizations in the public sector at central and particularly at local level is a serious challenge in the contemporary conditions of development of digital technologies. The process of transformation of work processes in those

organizations towards gradual digitalization have been going on mainly throughout the last 15 years, for which there are various indications. It is implemented by complying to a number of principles adopted in United Europe and other developed countries in the world, including personal data protection and individual's protection, transparency and openness, aspiration to relieving the administrative burden, to generating and managing significant in their scale databases, etc. The processes of digital transformation of central and local authorities conforms to the announced strategic guidelines for the introduction and establishment of electronic government in our country. Those processes presuppose purposeful introduction of electronic administrative servicing based on the implementation of contemporary digital technologies with a focus on the consumer (State Agency "eGovernment", 2021). Undoubtedly, the processes of digitalization are a key prerequisite for securing fast, timely, reliable and highly satisfactory servicing of the citizens and the business in the EU countries.

During the period of full membership and multifaceted European integration of Bulgaria, a number of efforts have been focused on the development and introduction of digital services at both central and local administrative level. These processes have led to a significant increase of the role of information and communication technologies (ICT) for the efficient realization of digital administrative services and the resulting increase of the administrative capacity of central and local organs. The successful introduction of ICT does not depend only on the securing of financial resource, which was not an exception during the programme periods of the European structural funds for Bulgaria. An essential role for this success has the level of digital competences of both the administrative personnel and the users of electronic government, namely the citizens and the business. The different level of digital knowledge, skills and competences has caused significant disturbance in the demand and/or supply of digital services, which is a problem for those processes.

This article aims at presenting some trends in the dynamics of certain indicators reflecting from various points of view the development of digitalization in the public sector. A specific focus is placed on the regional dimensions of those processes, assuming that local authorities face much more serious challenges in this direction compared to the central state organs. We discuss the behaviour of official indicators provided by the National Statistical Institute, as well as those published by leading non-governmental organizations in Bulgaria. The assessment of those trends provides useful information about the analysis of the development of the processes of digitalization in the public

sector, in particular, of the regional differences, and the identification of both successful and problematic zones in this respect.

Digitalization in the public sector: electronic government development index

One of the major indicators for measuring the degree of development of the processes of digitalization in the public sector in many countries is the electronic government development index (State Agency "eGovernment", 2022). It aims at providing detailed characteristic of the degree of development of the electronic government in the UN member states. It encompasses three important dimensions providing the citizens and the business with the opportunity to use efficiently the offered online information and services: (1) adequacy of the telecommunication infrastructure; (2) capacity of human resources that use ICT; (3) availability of online services.

According to the results published in the UN report for the year 2020, our country ranks 44th among 193 countries regarding this Index, but for the first time it enters the category "very high degree of development" of the electronic government (along with countries from the European regional group: the Czech Republic, Slovakia, Latvia, Croatia, Hungary and Romania) (State Agency "eGovernment", 2022). The results related to the dynamics of the Index show that along with the remaining countries in this category, Bulgaria demonstrates consistency and progress in the development of strategic documents in the field of electronic government and the provision of electronic services.

The country also shows significant progress regarding the "E-participation Index", according to which, in 2020 Bulgaria moves up the rankings with no fewer than 12 positions (from 35th to 23rd place among 193 countries) (State Agency "eGovernment", 2022). It is without doubt that the focus and the efforts of the central government have given their contribution to the positive trends in the development of digitalization and at local level, too, although there are still substantial discrepancies among the municipalities with the highest and those with the lowest indicators in this direction.

Trends in the use of digital services by Bulgaria's population

The official source of information regarding the use of ICT in households is a standardized sample research conducted in our country by the National Statistical Institute (NSI) (NSI, 2022) as part of the European Statistical

Programme. It is conducted by applying a unified methodology in each EU member state in compliance with Regulation (EU) № 808/2004 and aims at providing comparative data about the use of ICT at households in Europe. The survey has been carried out among 5,000 average households in which there is at least one member between 16 and 74 years old. The research encompasses the following topics: access and use of ICT by citizens and households; the use of the Internet for various purposes by citizens; ICT competence; ICT security; electronic commerce; obstacles users have encountered when using ICT and the Internet; problems when using the Internet, electronic commerce, etc.

The indicator ***"relative ratio of the citizens between 16 and 74 years old using the Internet regularly"*** shows a trend towards a systematic increase for the period 2006–2020. Figure 1.a and Figure 1.b represent one quarter of the districts – those which have achieved the highest and the lowest average ratios for the last 5 years. We can discover definite regional disturbances as well as irregular increase of the indicator for the 15-year period in certain districts – for instance, in Pernik there is an increase of 30% in 2006–2010 to 67% for 2016–2020; for the same period, the Pazardzhik district shows an increase of the same initial 30% to around 50%.

The initial levels of certain districts, however, differ significantly, for instance, the lowest levels are measured in 2006 in Kurdzhali (6%), Silistra (10%), Blagoevgrad (13%), Razgrad (13.5%) and Smolyan (13.7%), respectively, the highest levels – Varna (32%), Ruse and Plovdiv (27%), Burgas and Montana (26%), Stara Zagora (25%). Sofia City is a specific extreme case and is out of the range of coverage (starts from 56% in 2006 and reaches 84% in 2020).

The digital competences of the population and the attitudes of using the Internet are key prerequisites for the search for digital services by the administrative organs. This is valid to a considerable extent for the local authorities, where there are significant discrepancies in this respect. Figure 2 presents the dynamics of the three indicators of the category "relative ratio of the citizens using the Internet to interact with public institutions".

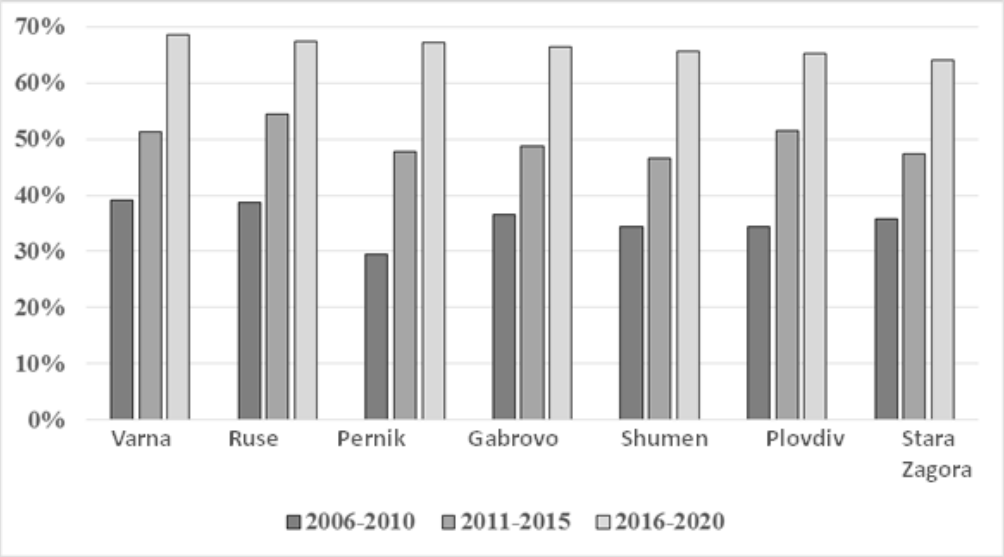


Figure 1.a. ***Relative ratio of the citizens using the Internet regularly – districts with the highest ratio for the last 5 years***

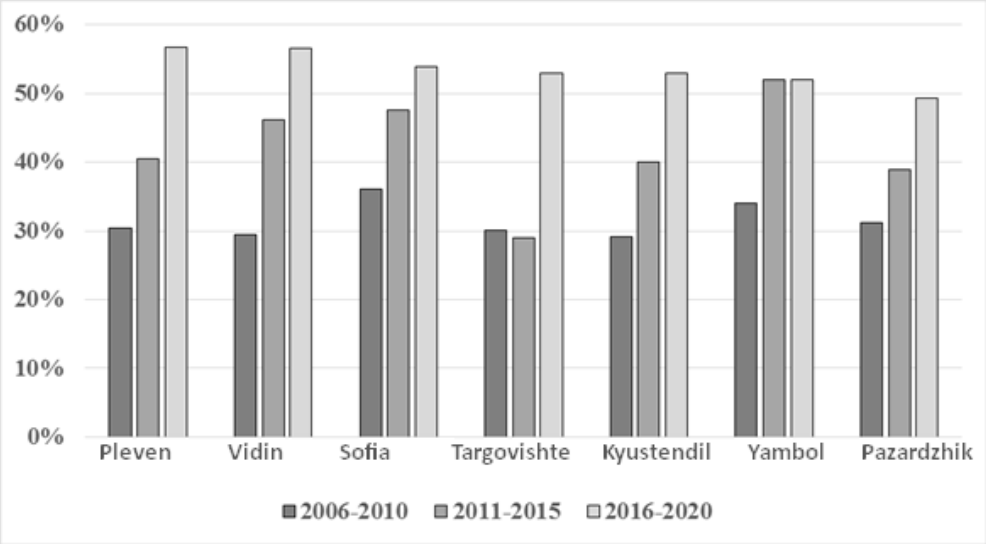


Figure 1.b. ***Relative ratio of the citizens using the Internet regularly – districts with the lowest ratio for the last 5 years***

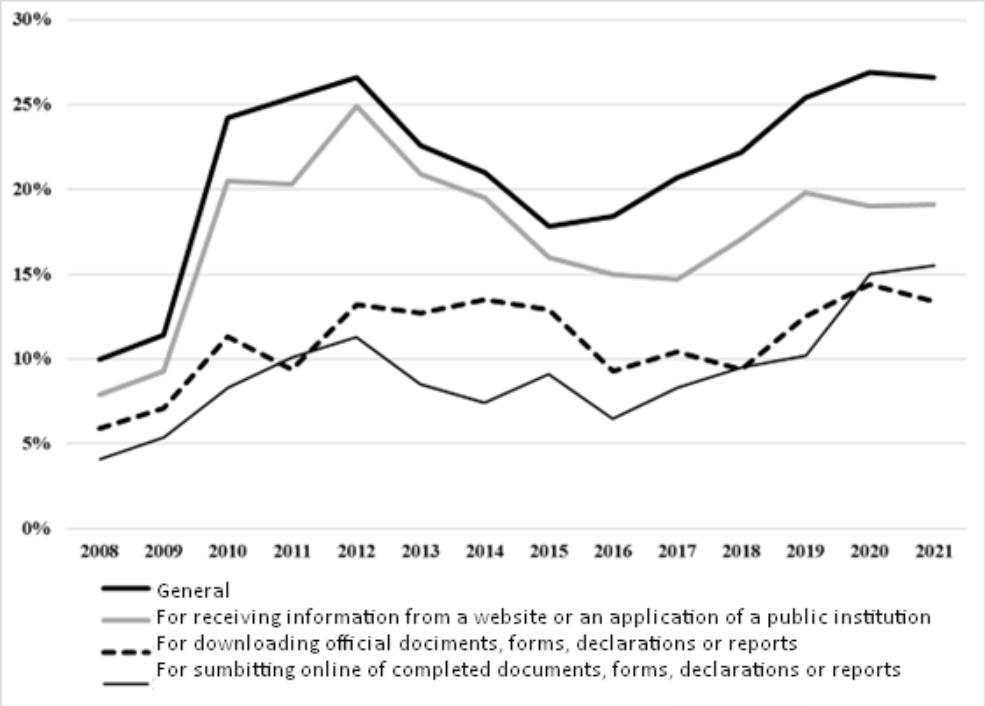


Figure 2. ***Relative ratio of the citizens using the Internet to interact with public institutions***

The relative ratio of the citizens interacting with administrative organs shows an accelerated growth during the initial period after our accession to the EU (2008–2012), which also coincides with the period of global financial crisis – the sample assessment shows that in 2012 over one quarter of the citizens in the above-mentioned age group contact with central or local administrative organs with the help of the Internet. For a period of three years (2012–2015) this ratio shows a trend towards a decrease (from 27% to 18%), after which we again observe an upward trend which leads to the restoration of the level of 27% at the end of the researched period (2021).

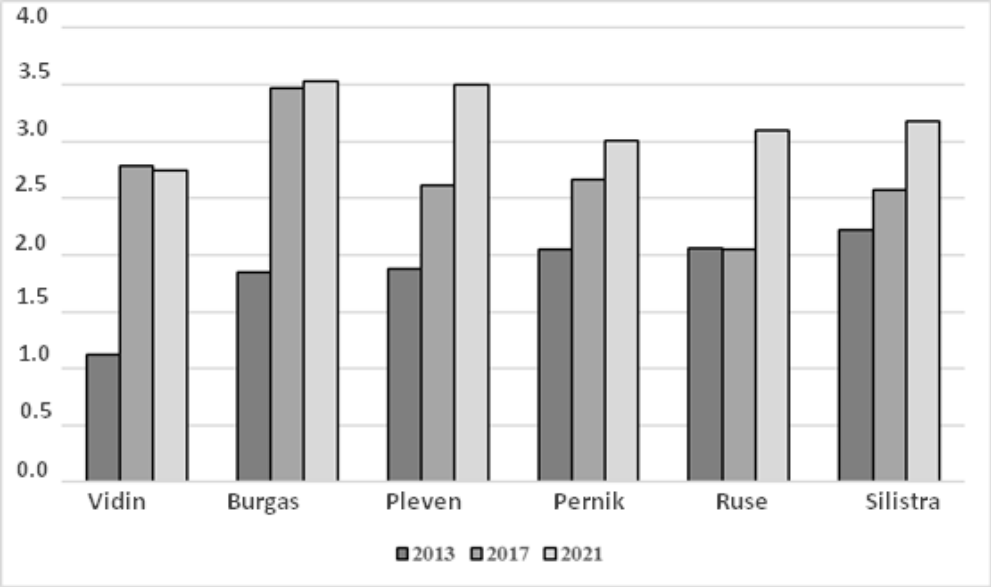
The trend of the dynamics of the indicator "relative ratio of citizens using the Internet to obtain information from a website or a software application of a public institution" shows an analogous character. However, we observe a stabilization of the values of the indicator at a level of 20% (i.e., every fifth citizen) during the last three years of the period 2019–2021. The proximity of the measured ratios of this first specific indicator to those of the total one shows that this is the main reason for the interaction with the administrative organs, namely informing the citizens through the corresponding websites.

A slightly different trend is shown by the indicator "relative ratio of citizens using the internet to download official documents, forms, declarations or statements". After doubling this ratio from 6% (2008) to 13% (2012), we observe a fluctuation of the values around a level of 12% with a slight increase to 13-14% at the end of the period. It can be expected that the indication of growth over the last three years is stable, and this ratio will continue to increase. In support of this expectation, we observe the dynamics of the third specific indicator, namely "the relative ratio of citizens using the Internet to submit online completed documents, forms, declarations and statements". Until the middle of the period, we observe analogous dynamics (upward until 2012 and a decrease until 2015–2016), after which we see a well-established trend towards increasing this ratio from a level of 6.5% (2016) to 15.5% (2021).

These facts are indicative of the availability of a positive trend towards the expansion of the electronic document turnover in the context of the development of the electronic government in Bulgaria during the third decade of the 21st century. Despite this, the level of the figures is still unsatisfactory – the majority of the respondents in the research conducted by the NSI still lack any form of Internet communication with the administrative organs in our country. The low ratio of Bulgaria's population which uses the Internet for interaction with the public institutions acts as a peculiar barrier before the more accelerated development of digital services by both the central and the local authorities.

Assessment of the development of the electronic government and the transparency of the activity of the local authorities

This research pays special attention to two indicators from the field of "Administration" which are assessed within the regular research of "Regional profiles" of the Institute for Market Economics (IME) (IME, 2022). The first of them is namely "Development of the Electronic Government" and is measured through self-assessment of respondents-representatives of local authorities regarding the degree and the scope of electronic services provided by the corresponding municipalities on a scale from 1 to 4. Grade 1 shall reflect the practical absence of electronic services, 2 – the existence of basic ones, and 3 and 4 respectively, indicate real communication between the municipality and the users of such services.



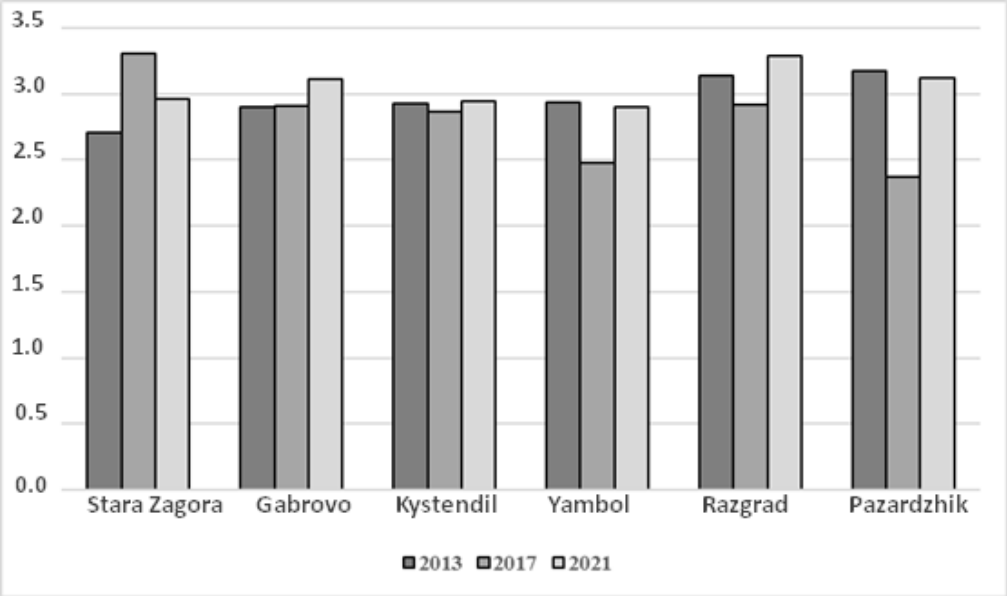
Source: Institute for Market Economics, Regional profiles (www.regionalprofiles.bg).

Figure 3.a. ***Assessment of the electronic government: districts with the highest growth of the average grade (scale 1 to 4)***

Figure 3.a presents assessments of the level of development of the electronic government during selected years for the period of calculating the indicator (2013–2021) for the districts with the highest growth of the average grade. The Vidin district starts at an incredibly low level with extremely limited supply of electronic services among the municipalities in 2013; for the eight-year period it manages a significant rise of the indicator to levels of 2.8 (above the average rank of 2.5). The most serious improvements here are found in the Burgas and Pleven districts where the grades start at the unsatisfactory level of 1.9 and reach the relatively high level of 3.5 on the used scale. The Pernik and Ruse districts start at a level below the average (around 2.0) and reach the satisfactory level of around 3.0.

Figure 3.b presents the assessments of the electronic government during the same years for the period of selected districts which do not show significant improvement of their grades. It is a positive fact the grade of the provided electronic services in those districts maintains a level above the average on the scale (nearly 3.0) during the period 2013–2021. At the same time, the expectations for long-term trend towards an increase of the indicator are not fulfilled. It would be unwise to define as positive the maintenance of an initial level (though not a bad one) throughout 8 years without clear indication for systematic improvement, including the expansion of the range and degree of

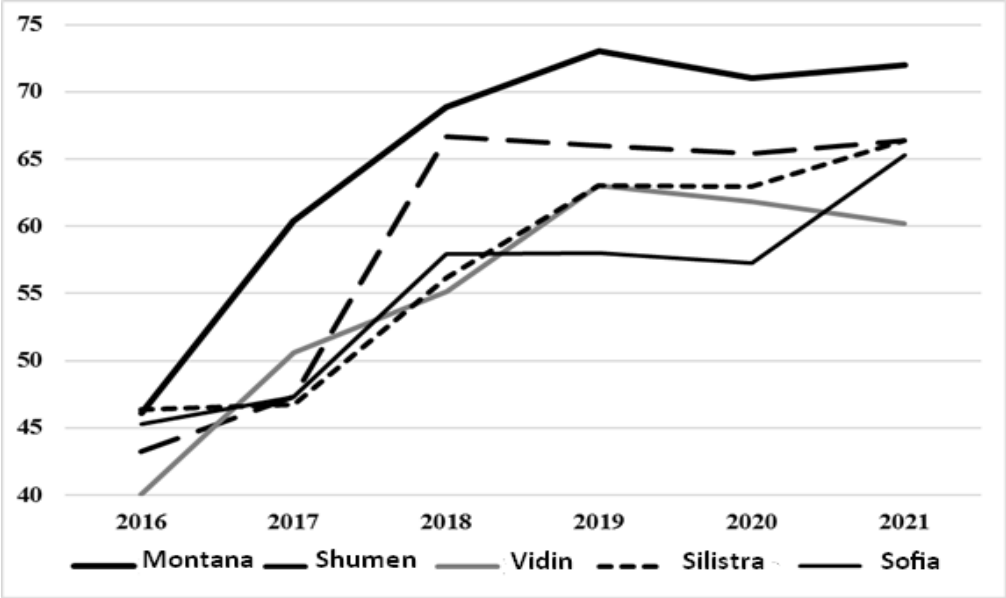
providing electronic services by the municipalities in those districts. This is true to the largest extent for Kyustendil, Razgrad, Yambol and Pazardzhik.



Source: Institute for Market Economics, Regional profiles (www.regionalprofiles.bg).

Figure 3.b. ***Assessment of the electronic government: districts without significant growth of the average grade (scale 1 to 4)***

The second indicator concerning the efficiency of the introduction of digital services and expanded internet communications is "Ratio for active transparency of the organs of local government" (FAIP, 2022). It reflects the results of the annual research of Foundation "Access to Information Programme" through which there is a systematic assessment of the functionality of websites of the administrative organs as well as the efficient use of electronic applications for access to information to the relevant authorities. The grade for a specific district as of the corresponding year is formed as average weighted to the grades of the ratings of the municipalities in its scope on the scale from 0 to 100.



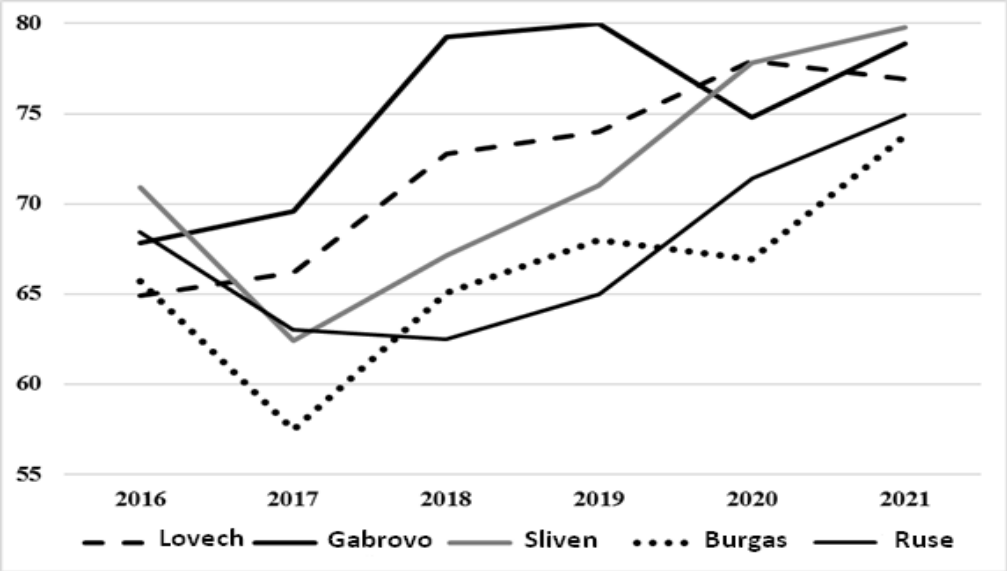
Source: Institute for Market Economics, Regional profiles (www.regionalprofiles.bg).

Figure 4.a. ***Rating of active transparency of the organs of self-government: districts with the highest growth, 2016–2021.***

Figure 4.a presents the dynamics of the rating of active transparency of the organs of local self-government, assessed for selected districts with the highest growth for the period 2016–2021. The Vidin district starts at the lowest level 40 in 2016, achieving an increase of its rating with 50% to level 60 in 2021. Analogous results are also observed for Shumen (from 43 to 66), Silistra (from 46 to 66) and Sofia District (from 45 to 65). A serious increase of the indicator is observed in the Montana district: from 46 to 72 at the end of the period.

Figure 4.b presents the dynamics of the rating regarding selected districts for which we do not observe significant increase of the indicator for the corresponding period (as an absolute growth of the rating figure). At the same time, we shall note that the initial level of the rating here is much higher and it would not be realistic to expect significant improvements in the assessed characteristics for a period of only 5 years. For instance, the Ruse district starts at a high level (68 in 2016) and after a certain decrease of the grades for the period 2017–2019 it increases the value of the indicator to level 75 in 2021. Furthermore, the Sliven district starts at the highest initial level 71 (only Sofia City receives a grade of 74.8 for 2016), reaching level 80 at the end of the period. The dynamics of the indicator is analogous – as an average weighted rating of the municipalities of the corresponding administrative territory – for

the districts of Lovech (12 points increase: from 65 to 77), Gabrovo (11 points: from 68 to 79) and Burgas (8 points: from 66 to 74).



Source: Institute for Market Economics, Regional profiles (www.regionalprofiles.bg).

Figure 4.b. ***Rating of active transparency of the organs of self-government: districts with the lowest growth, 2016–2021.***

Conclusion

The presented information from independent sources undoubtedly testifies for the real progress in the development of the electronic government in our country after Bulgaria's accession to the EU, and especially in the period after the recovery from the global financial and economic crisis. We have discovered a number of positive trends, for which there are indications that they will be preserved in the third decade of the 21st century. At the same time, two aspects can be outlined as problematic. In the first place, the relatively low values of the indicators of factual use of digital services offered by public institutions. Though increased, the relative ratio of the citizens using the Internet, including for interaction with the organs of central and local authority is still at an unsatisfactory level.

Secondly, we have discovered serious regional discrepancies regarding the processes of digitalization of local authorities. The rare cases of using the Internet by local residents in some municipalities and even whole districts is a serious barrier before the digitalization of the local administrative services.

With the exception of some large district cities, a similar low ratio demotivates the municipalities to invest substantial funds on the strategy for digital transformation of their processes. Despite this, the observed positive trends are a source of optimism, to the largest extent regarding the increasing digital competences of the citizens and the search for electronic services, which is a key prerequisite for the development of the electronic government and the expansion of digital administrative services offered by local authorities.

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