Questioning the Real Citizen-Centricity of e-Government Development: Digitalization of G2C Services in Selected CEE Countries

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Abstract

This paper presents findings of a pilot research study that focused on a selected area of e-government – digitalization of core government services to citizens (G2C) in selected Central and Eastern European (CEE) countries – namely in the Czech Republic, Hungary, and Romania. Taking into account the literature available to date, it is a first attempt of its kind, even if mainly a qualitative study. The findings clearly indicate that the level of digitalization of the administrative services for citizens is rather low. All three countries are roughly at the same level of electronic government development (with the Czech Republic slightly ahead), despite vastly different strategies and levels of centralization. This could change in the future, after the results of their respective national strategies become visible, and we are also interested in applying our method to other CEE countries, with the clear aim of refining it.

Keywords:
digitalization of core services, e-government comparisons

1. Introduction

This paper presents findings of a pilot research study that focused on a selected area of e-government – digitalization of core government services to citizens (G2C) in selected Central and Eastern European (CEE) countries – namely in the Czech Republic, Hungary, and Romania. The citizen-centricity of e-government, together

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with the improvement of service delivery (easier to use, more convenient, higher-quality services etc.), is usually perceived as one of the key goals of e-government initiatives, next to the improvement of government business processes (increase of internal efficiency, better information-sharing, inter-operation, innovation, better decision-making, greater transparency and accountability, greater proximity to citizens, e.g. Zhao et al. 2014).

E-government has been one of the most important elements of public-sector reforms in developed and developing countries, as well as in countries in transition, for the last two decades, and has received a lot of attention in theory, research, and practice. It has also been a fashionable element of administrative reforms. E-government literature is rather vast and focuses on various topics. The emergence and increasing expansion of e-government diffusion literature has corresponded to the rapid development of e-government (Zhao et al. 2014), and the speed of technological changes in the IT area (Moon et al. 2014; Brown 2005). Yet, there is still no universally accepted definition of the e-government concept (Yildiz 2007). Broadly defined, e-government is about the implementation of information and communication technologies (ICT) in and around public administration (Homburg 2008). It encompasses all government roles and activities shaped by ICT (Brown 2005).

E-government has become a global phenomenon (Schuppan 2009). E-Government initiatives of varying scope and complexity have been implemented at the municipal and other levels of government throughout the world (Rose and Grant 2010), yielding various values (Luna-Reyes et al. 2017; Twizeyimana and Andersson 2019). ICT have become ubiquitous in the public sector, and it is difficult to think of a public problem or government service that does not involve them in some substantial way (Gil-Garcia et al. 2018). Although e-government policies and projects have always been ambitious, gaps between the revolutionary potential of ICT (e-government hype) and evolutionary reality, as well as barriers to e-government development and diffusion have repeatedly been researched and identified (e.g. Heeks 2006; Garson 2006; OECD 2009; Chen 2010; Luna-Reyes et al. 2012 and 2017; Rana et al. 2013; Müller and Skau 2015).

Even though there has been an increase in the number of e-government studies and articles, according to the available studies (among the more recent ones, we can mention Snead and Wright 2014; Madsen et al. 2014; Zhang et al. 2014; Janowski 2015; or Gil-Garcia et al. 2018), little is yet known about the digitalization of core administrative services for citizens in developed as well as other (developing or in transition) countries. Moreover, it is rather surprising that there is, as far as we know, no research that would discuss the maturity of administrative services that are most commonly used by citizens. The available benchmarking studies still deal with this topic only partly, as is outlined later on in this paper. Focusing the benchmarking on core administrative for citizens is also relevant, because benchmarking studies usually indicate that during e-government development, attention has been

paid mainly to the digitalization of public services for businesses in many countries. On the other hand, there are countries (like Denmark) that have recently refocused their e-government strategies on core public services, which may represent a more demand-oriented approach in designing e-government policy and in e-government development.

Due to the specifics of public administration in countries in transition (post-communist states may still lack strong institutions; the political context is unstable, with unfinished reform attempts; checks and balances are not yet well established; administrative capacity needs improvement; corruption is still a problem etc.), as depicted, for instance, in the literature on the Neo-Weberian state (e.g. Randma-Liiv 2008), researching e-government in the CEE countries is very relevant. As Schuppan (2009) or Nguyen et al. (2014) emphasized with regard to developing countries, a context-oriented approach seems to be a more promising route to the successful implementation of e-government. Even today, the literature on e-government developments in the CEE region is rather limited and fragmented, and not much synthetic research on e-government progress in the CEE countries has been published. A number of authors, particularly Ifinedo and Singh (2011), have tackled the situation of e-government in CEE countries, focusing especially on determinants of e-government maturity. Their study concluded that the availability of national wealth *per se* might not be a sufficient factor to determine growth with respect to e-gov maturity in the region. They did not explain their findings regarding the situation in each country, and the findings may be obsolete at present.

Some findings on e-government developments in the CEE regions were published in available benchmarking studies (like those prepared by Capgemini for the European Commission, e.g. Tinholt et al. 2018), but countries are usually not grouped according to their geographical location in benchmarking reports, but according to their development in e-gov areas, differentiated by the methods used in benchmarking. Sometimes they focus only on a selected city/cities, which makes it difficult to grasp a more complex picture about what is going on and why. As the latest available results of the European Commission's eGovernment Benchmark show (Figure 1), CEE countries are positioned closely together in the second half of the ranking. The exploration of the specifics of these countries could provide a wealth of information on the development of eGovernment.

Figure 1

The latest results of the eGovernment Benchmark (The countries covered in this study are indicated with red circles)
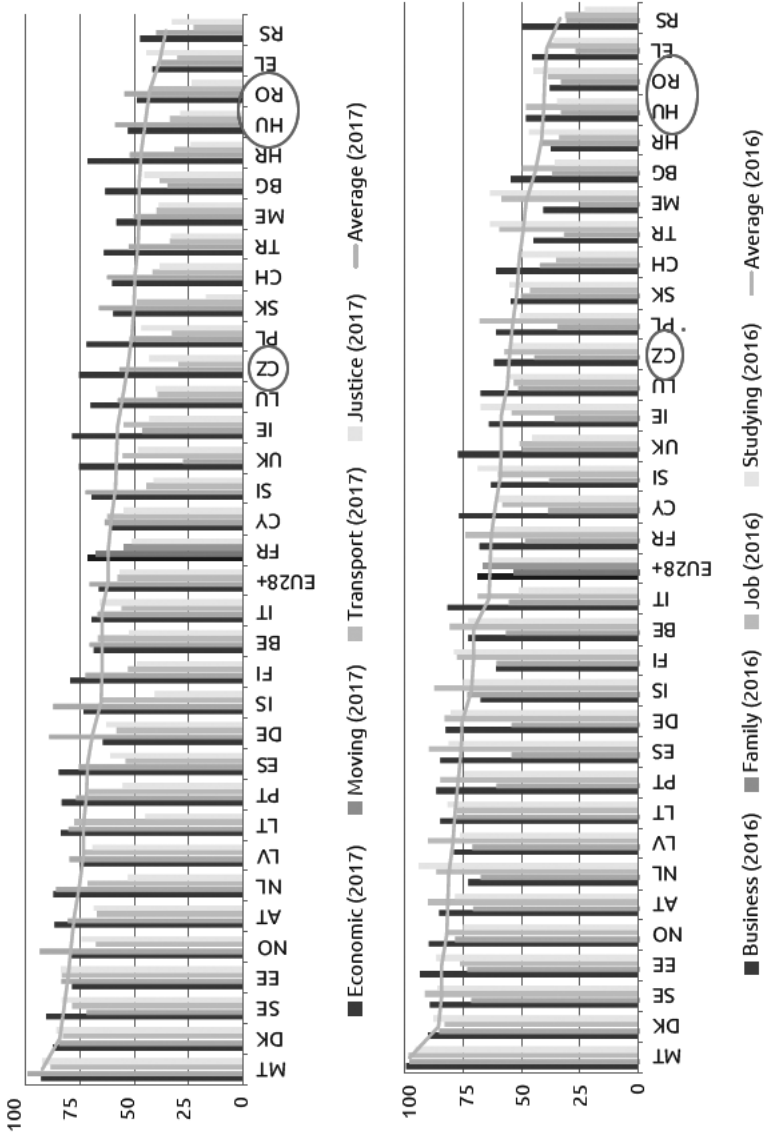
Source: Tinholt et al. 2018.

The following article is organized as follows: first, it summarizes the role and discussions about maturity models. Secondly, it introduces methods and presents and discusses the main findings. Finally, the paper presents conclusions that also contain questions for future research.

2. Comparing e-government developments across countries, maturity models and their limitations

In practical approaches to e-government evaluation, benchmarking is thought to have great potential. E-Government benchmarking means undertaking a review of the comparative performance of e-government between nations or agencies (Heeks 2006). Various sophistication/maturity/stage models of e-government have been developed and discussed. We believe that they are still useful, although e-government maturity was viewed by the UN as obsolete since e-government goals and targets are constantly evolving to deliver and surpass what the public expects (United Nations 2018).

E-government maturity models and benchmarking approaches that use them have their own developments, both in terms of practical activities and in terms of related theory. They raise various questions that are relevant for e-government evaluation theory and practice. Following the concept of maturity measurement published by the Software Engineering Institute (SEI), they usually assess the implementation of e-government as an evolutionary process and represent a desired evolution path (Laposa 2017). Based on his literature analysis, Laposa (2017) pointed out that maturity models focus on different factors, such as process maturity, object maturity (level of sophistication of a software) and people capability (ability of knowledge creation and proficiency enhancement). According to his research, maturity models can be one-dimensional or multi-dimensional and descriptive, prescriptive, or normative. According to the structure of their stages, they also can be fixed-level (consisting of generic maturity levels) or focus area (these models identify focus areas that need to be developed; the distinct focus areas may have a different evolution path – the number of stages may vary from area to area). These focus-area maturity models enable a more balanced and incremental improvement, because they cope better with the complexity of factors determining effectiveness, etc.

The model of Layne and Lee (2001) is considered one of the earliest models to measure the structural transformation of public services. They built their stages-of-growth model for fully functional e-government on the assumption that e-government is an evolutionary phenomenon and therefore its projects should be devised and implemented accordingly. Their paper presents the model, but the authors did not use it for the evaluation of actual e-gov maturity. Their model works with 4 stages: 1. cataloguing (online presence, catalogue, presentation, downloadable forms);

2. transaction(-based) (services and forms available online, working database supporting e-transactions); 3. vertical integration (local systems linked to higher-level systems, within similar functionalities); and 4. horizontal integration (system integrated across different functions, real one-stop shopping possible).

Andersen and Henriksen (2006) suggested an extension of the Layne and Lee model, because, in their opinion, more dimensions should be considered due to IT developments. They proposed Public Sector Process Rebuilding (PPR model), which focuses more on streamlining core processes and reaching customers in a more efficient manner. Their model was based on a generalization of features that were available on the web pages of 110 state agencies and boards. It has not been applied to evaluate a specific list of e-services either. They proposed the following stages: 1. cultivation (horizontal and vertical integration within government; limited use of front-end systems for customer services, downloadable PDFs available); 2. extension (extensive use of intranet and adoption of personalized web user interface, but still many manual routines); 3. maturity (abandon use of the intranet, transparent processes, personalized Web interface for processing of customer requests; internet and intranet merged, web site is organized to solve problems and requests rather than presenting formal organizational structures and general info, self-service is a key priority); 4. revolution (data mobility across organizations, application mobility across vendors, ownership to data transferred to customers).

Since that time, other models have been developed, some of which were subjected to various evaluations and meta-analyses. However, it seems that the theory of maturity models for e-government and its services has not been consolidated to a larger extent so far. This can be clearly seen in studies evaluating existing e-gov maturity models. For instance, in 2010, Lee published a qualitative meta-synthesis (10 years after their original proposal) on stage models of e-gov development, emphasizing that although various models had been suggested, they seemed to be incongruent with each other as these were based on different perspectives and used somewhat different metaphors. According to Lee, this presented a difficulty not only in understanding different research results, but also in planning future actions for e-government. His synthesis is based on an analysis of 12 available models and suggests 2 dimensions (operation/technology and citizen/service) and 9 stages (Lee 2010).

Fath-Allah et al. (2014) compared 25 e-government maturity models. According to their findings, almost all of the models contain:

- a stage related to the availability of the portal;
- a stage where the citizens can interact with governments (interaction);
- a stage where the citizens can transact with governments (transaction);
- an advanced stage that covers advanced features, such as information-sharing between agencies (integration).

This is rather useful for a practical assessment of e-gov sophistication, but the authors summarized their findings and did not go further – they did not suggest their own model and use it for an evaluation of existing solutions.

In 2016, Almuftah, Weerakkody, and Sivarajah published their comparison of 17 selected e-gov maturity models (not all of them were included in the previous meta-approach of Fath-Allah et al. 2014). They also pointed to drawbacks of the maturity models, asserting that there was very little clarity on the prescriptive nature of change required. According to them, little effort was made to research citizens' requirements. Furthermore, models did not explain how people belonging to disadvantaged groups, and those in rural areas, were able to access the e-gov portal. Additionally, most of the models did not consider input from social media, nor did they have mechanisms to address complaints, suggestions, and comments. The models also largely focused on information and the transactional capability of processes that have a statutory requirement either on the part of the citizen or the government and ignore how e-government deals with more complex services such as healthcare, social services, or education. On the other hand, they did not suggest changes to these models.

Similarly, but more specifically, the paper published by Zahran et al. (2015) pointed out (based on their own findings and based on their literature analysis) that:

- A majority of models are based on objective measures and follow a quantitative approach, which may lead to a dilemma if not designed properly, because they do not deal with qualitative issues.

- There is a clear imbalance between the abundance of government-side surveys compared with the scarcity of citizen-side studies.

- Some countries, wary of the results of international benchmarking, could adapt the "quick fix, quick wins" principle and hastily construct the e-equivalent of a bureaucratic administration.

- Conceptualization into stages is doubtful – evolutionary stages are not independent and linear.

- Sometimes, methodology is not sufficiently explained. We can see this point clearly in the methodology of the aforementioned UN eGovernment Survey (UN 2018), where the questionnaire is not public and constantly developed/updated for every new edition of the survey. Therefore, for example, the biannual results cannot be compared properly.

- Models do not focus sufficiently on local e-gov (e.g. in the European eGovernment Benchmark, out of the measured eight domains, "a few specifically relate to local government", van der Linden et al. 2017).

We can add to the first point that the measuring systems, especially the European eGovernment Benchmark study, are often closely related to policy priorities

(on the European level, currently the priorities in the 2016–2020 eGovernment Action plan; van der Linden et al. 2017), which can shift the focus from the perceived quality of the services to other areas of interest (e.g. cross-border service provision, availability of key enablers). The eGovernment Benchmark applies to a set of government domains, and each domain is measured through life events. Another limitation could be that one of the selection criteria for procedures is similarity: as it is difficult to handle major differences between public-administration procedures, important services with high diversity can be left out of the evaluation process. Another problem can be the resource intensity and high workload of the evaluation, the European benchmark study uses a subset of four life events in one year, another subset of four life events in the following year, alternately (van der Linden et al. 2017), and the different techniques of aggregation make the results difficult to understand and use in everyday practice on a detailed level (Csótó 2019a). Recently, Meyerhoff Nielsen (2017) identified 42 e-government stage models and enumerated the following weaknesses:

- A majority of models are technology- and supply-oriented, without any focus on outcomes or use;

- Most models show no real understanding of core government service concepts – e.g. individual service elements (e.g. information, transaction capability, and personal data) are not separate; downloadable forms are merely a type of static information and do not warrant a separate level;

- Decision-making, exemplified by the e-participation/e-democracy stages, should not be considered;

- Front-office service provision and back-office integration are often mixed;

- No identified model addresses governance directly;

- Most models merely restructure or adjust existing ones.

Considering the criticism of available maturity models, we believe that a framework for evaluating citizen-centricity should consider what Lee (2010) called Citizen/Service and therefore should incorporate the following questions:

- What activities can users of the core services accomplish (what steps have been digitized and what steps are not supported by the solutions used)?

- Where (on which platform) is the e-service available?

Both these general components – steps digitized and the platform where the service is available to potential users – tackle the extent to which the services support a smooth completion of an administrative task.

The critique of existing models also leads us to the conclusion that maturity models should be more adapted to individual types of public services. This is not done in some maturity models because they may be constructed particularly for the

evaluation of portals. In this respect, e-participation services that are sometimes required in the highest maturity levels should be clearly separated from transactional services. This calls for a better differentiation of e-government from e-governance solutions; although interlinked, the nature and mission of their services are rather different. Both expert literature and our experience clearly indicate that e-participation has its own evolution/development. This, however, requires more work in the future on categorizing administrative services and their reflection in maturity models. Future work can be more specific on the content of individual stages, taking into account what is possible and/or what has actually been provided by solutions that have already been tried with the help of available technologies.

What can be seen in the models is that the first two or three stages are defined rather clearly compared to descriptions of the last, or evolutionary higher stages that anticipate a larger integration of back-offices. To some extent, this is overcome in models that differentiate vertical integration and horizontal integration. Still, such a differentiation can be too broad, and its use may not always produce data useful for comparative analyses or policy-makers, public managers, etc.

Some models may require Web 2.0 components in the highest stages of e-gov maturity. Still, for a user, it may not be important if he/she can submit feedback on the existing level of service. This can be relevant for an evaluation from the supplier perspective. This means that some or all maturity stages can be designed separately for user-perspective evaluation or supplier-perspective evaluation, which should also consider costs, interoperability and compatibility with existing e-gov solutions and the vision in a national e-gov policy etc.

3. Our framework for comparing digitalization and the list of core administrative services for citizens

Building on some of the issues discussed above, we prepared and used a simple framework outlined in Table 1 below. The main goal of choosing a more simplistic approach was to test a method that moves away from the often policy driven, over-complicated methods that are highly resource-intensive and many times not able to easily integrate different kind of services. We prepared a method that can be used swiftly and that is, in comparison to some other benchmarking framework, more transparent. The framework also aims to be technology-neutral and not to focus on specific technologies (web 2.0, mobile devices etc.). The proposed framework provides more flexibility, being a more qualitative approach.

Some models mix the citizen/service perspective and the operation/technology perspective, as outlined by Lee (2010). In our view, it is better to

• start with the citizen/service perspective,

- combine it with the operation/technology perspective when assessing the level of seamlessness of available services, or

- explain the stage of the service using the operation/technology perspective.

Our instrument is based on the assumption that for a better evaluation of citizen-centricity, it is more appropriate to start with the citizen/service perspective and combine it with the operation/technology perspective later when assessing, explaining, and discussing the level of seamlessness of available services. We admit that our framework resembles the early stages from the standard five-stage model used in many benchmarking studies of e-government (no service, information, transaction, and seamless transactions). On the other hand, in our model we wanted to differentiate more the level of e-transactioning in order to better tackle individual service elements and evaluate the extent to which the services available online support a smooth initiation and completion of an administrative task.

In order to do so, we do not differentiate the level of integration (as, for instance, originally Layne and Lee (2001) did when they separated the transaction-based stage from vertical integration and horizontal integration, or as is usually done according to studies that have compared existing e-government maturity models). In our method, we tried to link the stages more with the citizen/user perspective and individual steps (i.e. components of a service/an administrative procedure) that can be done online. We believe that similar approaches can reveal the level of citizen-centricity of digital services more, since they are more demand-centred rather the supply-centred and approach the e-government services form a user perspective. We build our tool on an assumption that for a user it is not necessary to understand the level of the integration of services. Rather, he/she is facing various levels of transactions when actually experiencing available e-government services. We believe that this can overcome the problem noted already by Meyerhoff Nielsen (2017) that in stage models front-office service provision and back-office integration are often mixed. That is also why in our model we do not differentiate a stage related to the availability of the portal, and our model was not developed in order to evaluate portals. Also, although the evolutionary perspective is incorporated in our tool, it is not handled so strictly as in some other models. We also do not work with e-democracy/e-participation as the top stage, because we think related services are too specific and cannot be included. Rather separated tools should be more appropriate to evaluate these services.

Table 1

Types of web-presence and scoring in our approach

Types of web-presence	Description	Potential score
NO E-PRESENCE	No relevant services are available online at all.	0
SIMPLE E-INFORMING	Simple web presence (web pages/portal) with one-direction information (here adaptation to mobile technologies can be checked in order to cover current developments in technologies used for accessing information of public administration).	0.1–2
SIMPLE E-TRANSACTIONING	Some interactions are available (e.g. it is possible to download a form, or fill in a form online), but full transaction (like authenticated submission of the form) is not enabled (forms can be downloaded, but cannot be filled-in using the platform).	2.1–4
ADVANCED E-TRANSACTIONING	Transaction is enabled, and a user can complete the procedure online (full online transactions are available on the platform; user can authenticate him-/herself, fill-in a form and submit it completely online).	4.1–6
MORE SEAMLESS E-TRANSACTIONING	There is a higher level of facilitation of digital interaction between citizens and their government compared to the previous type of web-presence. In comparison to the previous stage, tools are available that further support seamless features of the e-service for users; at this stage, more complex online services are available (e.g. thanks to more complex and ergonomic tools incorporating information regarding steps and length of the process, the possibility to save a draft, store documents, personalization, responsive sites or platforms, reducing the number of fields required to be filled-in thanks to data-sharing and tools for the recognition of the user and the application of the once-only principle).	6.1–8

For our research, we prepared a pilot list of the following 10 services we consider important for citizens, building on the hypothesis that they are high-impact administrative services, i.e. used by a rather high number of citizens (e.g. the first four services were the most frequently used state register/official document-related services in Hungary, according to the monitoring statistics of the Ministry of Interior (2018). We chose not to focus on services for businesses and other organizations (like NGOs). The selection criteria on the one hand are based on the frequency of usage and, on the other hand, also put more emphasis on local (government) services, which are sometimes used on a daily basis, compared to public-administration services, which are sometimes not used by citizens at all or rarely (e.g. income taxes can be arranged by employers for them, applications for building permission may be solved by developers, enrolment in higher education or services related to losing and finding a job may also not be relevant for all citizens):

1. obtaining new IDs and travel documents;

2. registering a new address;

3. obtaining/changing a driving license;

4. registering a car;

5. solving a waste-disposal issue;

6. paying local taxes and fees (including water supply);

7. paying for local transport (this may not be available in smaller cities and towns);

8. making submissions to local administration (like complaints, petitions etc.);

9. participation in local decision-making (including participatory budgeting as an emerging public-policy tool at the local level);

10. application for childcare (for a kindergarten/a primary school).

In the available literature, as well as government documents, we have not found any list containing core administrative services for citizens that would be subjected to the evaluation of their online sophistication. This was done earlier during the benchmarking of eEurope initiatives, for which a list of 20 public services was used that is not followed completely in the current benchmarking prepared for the European Commission (European Commission 2001). The list of 20 public services was drawn up by the European Commission and the member states and combined services for citizens and businesses. It did not contain some of the services that are used most frequently by citizens – especially those related to local authorities (e.g. solving waste disposal and paying local taxes and fees, paying for local transport, engaging with decision-making bodies, application for childcare). For instance, within the current e-government benchmarking for the European Commission only some of these services are being benchmarked, as outlined in Table 2. A list of public services that are most frequently used by citizens is not available in the PA/PM literature, either. This clearly raises questions about the real level of citizen-centric development of e-government.

Another reason for selecting the 10 services evaluated is the need to have a common base for all three countries, which have vastly different e-government systems (Hungary is in the process of centralizing it, in Romania almost all online services available are offered by local governments, whereas Czechia is somewhere in between). Other services can be added in the future, if they are present or available to the public (even if only in an offline guise), but some data are hard to find and some institutions are less than eager to release information, even when available.

Table 2

Our pilot list of core administrative services for citizens and the e-government benchmarking for the European Commission

Services from our list	and the list of 20 public services (eEurope benchmarking)	and the current eGov Benchmark Framework (van der Linden et al. 2017, Tinholt et al. 2017 and 2018)
1. Obtaining new IDs and travel documents	"Personal documents"	Obtaining passport is included in the Life event "Family Life"/"Family"
2. Registering a new address	"Announcement of moving"	Included in Life event "Moving"
3. Obtaining/changing a driving license	"Personal documents"	Not included in the Life event "Owning and Driving a Car"
4. Registering a car	"Car registration"	Included in in the Life event "Owning and Driving a Car"
5. Solving a waste-disposal issue	not included	not included
6. Paying local taxes and fees (including water supply)	not included	not included
7. Paying for local transport (this may not be available in smaller cities and towns)	not included	not included
8. Making submissions to local administration (like complaints, petitions etc.)	not included	not included
9. Participation in local decision-making (including participatory budgeting as an emerging public-policy tool at the local level)	not included	not included
10. Application for childcare (for a kindergarten/a primary school)	not included	not included

Source: Authors.

For assessing the web presence of individual services, information on life events and services related to our core services were checked on national portals and web pages of local authorities, as it is the main data source. For services provided by local authorities, the 3 largest cities in each country were considered. Data were collected by the authors of the study (each author was collecting data in his own country). Based on the proposed framework, a table was formed for the pilot data collection. The location and description of the services was provided by the

authors with a score derived from the framework and the findings with a detailed description and justification of the scoring and also contextual, country-specific additional information. Based on the tables, the authors discussed their experiences and modified the scores in cases where a different approach was used by different data collectors during the data gathering to achieve consistent results. The finalized scores were used for the analysis and country comparisons.

4. Findings and discussion

Our findings on the digitalization of the core administrative services for citizens are illustrated in Figure 2 and summarized in Table 3. Overall, the digitalization of services is low and, in most cases, does not go further than allowing simple e-transactioning (the score usually did not exceed 4). This means that some interactions are often available online (e.g. it is possible to download a form, or fill in a form online), but full transaction (like the authenticated submission of the form) is usually not enabled in the vast majority of the administrative services researched; forms can be downloaded, but cannot be filled in using the platform. Only in the case of some services did the countries score higher – this was the case of local rather than national services. Usually, services related to paying local taxes or making submissions to local administration scored the highest.

Our findings clearly indicate that, although it has often been emphasized that e-gov should be citizen-centred, the electronic administrative services for citizens are clearly not there yet. The findings also clearly indicate different situations in the three countries surveyed, which emphasizes the need to take into account the specifics of each country. The necessity to check the context more during e-government evaluation was already clearly pointed out in the available literature (for instance by Schuppan 2009).

As can be seen in Figure 2, the three countries perform almost identically in terms of the first four services that are related to central registers and official documents. These are national services in all countries with only one exception, and personal visits to responsible authorities (usually those to which the related duties were delegated by the central government) are needed, so the scores cannot be high. Hungary has some advantage in comparison to Czechia and Romania, as some additional services (replacement of stolen, lost, or damaged documents) can be done fully online, and their issue status can be tracked.

Figure 2

Digitalization of the core administrative services for citizens in the three countries
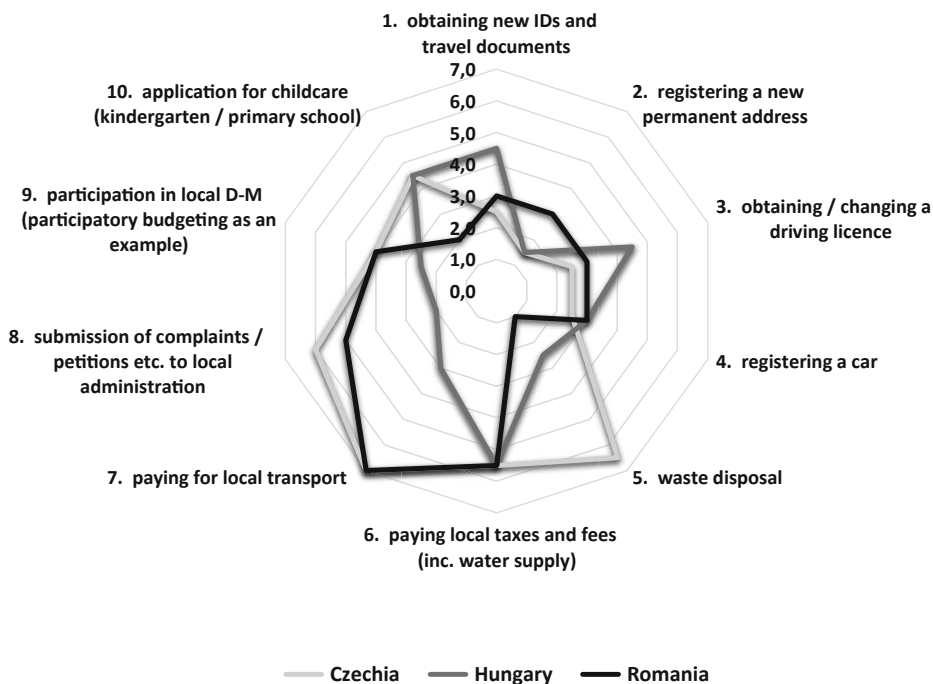
Source: Authors.

Looking at local taxes, the three countries also perform very similarly, as the biggest cities have their own electronic services for this purpose and/or (as in Romania and Hungary) there is a central portal available that municipalities can use. There are comprehensive e-ticketing solutions for local transport in the three biggest cities in Czechia and Romania, but this is not the case in Hungary (only some pilot projects in this field), and Hungary is also lagging behind the other two countries in handling the submissions of complaints to local administration and involving citizens in local decision-making. It can be said that the biggest three cities are more advanced in electronic services and e-participation in Czechia and Romania than in Hungary. Regarding waste disposal issues, Czechia is leading the way by far. The last service (application for childcare) is more advanced in Czechia and in Hungary, in the latter because of a new central service for primary school enrolment that has started this year.

On the other hand, one must consider that we concentrated only on the three largest cities from the three countries. The situation may be very different in other

cities and the score presented in Figure 2 cannot describe the digitalization level of the services across the whole group of municipalities in the three countries. For instance, this is almost impossible to evaluate in Czechia, where almost 6,250 municipalities exist and over three-quarters of the municipalities (77 %) have fewer than 1,000 inhabitants. In the future, the comparison may focus on a larger sample of municipalities. Still, administrative systems in all three countries can be different, which will limit potential comparisons to some extent.

Table 3

Digitalization of the core administrative services in Czechia, Hungary and Romania (scores and comments)

Services	Score given			Comments – summary
	CZ	**HU**	**RO**	
obtaining new IDs and travel documents	2.5	4.5	2.5	This is a national service in all the countries. In none of the three countries is there a complete transaction for it, and a personal visit to the clerk's office is still required. In the case of CZ, only information describing the service and related requirements is available on the national portal. No components for simple e-transactioning are available (like downloadable forms), but applications are prepared on the spot by civil servants. In the case of some cities, appointments can be made online. In HU, appointments can be made online, but physical presence at the Governmental Windows (points of single contact) is still necessary. There are no downloadable forms, but civil servants create the application forms (and pictures) on the spot, similarly to CZ. Some passport-related services (replacement of stolen, lost, or damaged documents) can be done fully online, and their issue status can be tracked. In RO, appointments for travel documents can be made online. For IDs, it differs from city to city, including payments for the service. But downloadable forms for obtaining IDs and travel documents are available in most municipalities.
registering a new permanent address	1.5	1.5	2.5	In CZ and HU, this is a national service. In RO, this is a local service. In Czechia and Hungary, personal visits to responsible authorities are required, and no tools for simple e-transactioning are available. In RO the situation differs from city to city: some make online appointments or paying the fee possible, while downloadable forms are available in most municipalities.

Services	Score given			Comments – summary
	CZ	**HU**	**RO**	
obtaining/changing a driving licence	2.5	4.5	2.5	This is a national service in all the countries, and the situation is similar to the digitalization of services related to obtaining new IDs or travel documents.
registering a car	2.5	3	2.5	This is a national service in all the countries. In all three countries the situation is similar to the first service. Downloadable forms are available in CZ and RO. In HU, applications can be submitted and fees can be paid at the Governmental Window.
solving a waste-disposal issue	6.5	2.5	1	In CZ and RO, this is a local service. In HU, it is both a national and a local service. In CZ, municipalities are responsible for this service, some contract this out. A description is not available on the national PA portal, but on web pages of individual towns and cities. Two of the largest cities (not Prague) offer instruments for e-payment. Their functionality cannot be tested, because it is linked to a prior registration and a permanent residence of a citizen. In HU, local/regional companies provide this service in most municipalities, but a relatively new entity is responsible for pricing and billing on the country level. There is no central customer e-service, and local waste-management companies also provide basic information on their websites (requirements, scheduling), and some downloadable forms are also available. In RO, private companies provide this service in most municipalities. In most cases, information describing the service and related requirements are available on the provider website. No downloadable forms and no scheduling are available.

Services	Score given			Comments – summary
	CZ	HU	RO	
paying local taxes and fees	5.5	5.5	5.5	This is a local service in all the countries. In CZ a description is not available on the national PA portal, but on web pages of individual towns and cities. Their provision may be decentralized, and the administration of payments and related services is determined by existing structures. Water supply is usually administered by municipal companies. Citizens are also required to pay administrative fees for dogs or local property tax directly. The structure for the administration of the fee for dogs depends on individual cities – in Brno, for instance, city districts are responsible for it. The local property tax is administered by the Tax Office of the Czech Republic, and money gathered is then distributed to individual municipalities. In the case of most fees, payment by bank transfer is available, in the case of some of the local services, citizens can register and have their user account within which they can administer payments. In HU, a new national portal for local governments is available for smaller municipalities that have not developed e-services (large municipalities developed their own solutions earlier; Local Government Portal: https://ohp-20.asp.lgov.hu/nyitolap). Water supply companies also have e-customer service in the largest municipalities. In most cases, the transaction can be initiated and completed entirely online. The situation in RO is similar to HU. This is a local service, but a national portal for paying taxes exists. Information describing the service and related requirements is available both on the national portal and on the municipality's webpages. In most cases, the transaction can be initiated and completed entirely online.
paying for local transport	7	3	7	This is a local service in all three countries. In the case of large cities in CZ and RO, a city business company is usually established, and linked to the city budget. Payments for local transport can be fully handled online in the three largest cities and are usually supported by mobile applications. Payments for local transportation cannot be handled completely electronically in the three largest cities in HU (except some passes and tickets in Debrecen with an eID or a student card, and a mobile ticketing pilot in Budapest for the airport shuttle bus).

Services	Score given			Comments – summary
	CZ	**HU**	**RO**	
Submissions of complaints to local administration	6	2	5	Submissions to bodies of CZ municipalities can be made using various means (e-registry-office – "e-podatelna"; e-mail, through an application where, upon prior registration, citizens can track their submissions). The procedure was enabled in July 2009 via data boxes, but for citizens it is voluntary. If set up, data boxes can be used as a file repository and also as an instrument for requesting public information based on the freedom of information legislation. E-services for citizens can also be integrated into larger information systems of cities. In the case of petitions, according to legislation, only paper petitions can be submitted; e-petitions are not allowed at the moment. In HU, this differs from city to city. In most large cities, there is a way to send a complaint through electronic means and to receive an answer through email, but there is no sign of a centralized effort. In RO, as well, this service differs from city to city. In most large cities, there is a way to send a complaint through electronic means and to receive an answer through email. Some cities also have a platform on which complaints are visible to the other users and must receive a public answer (MyCluj is an example from the city of Cluj-Napoca, integrated with the internal back-office system of the city hall). Some central-government institutions also offer citizens the possibility to send a petition through email.
Participation in local D-M	4	2.5	4	Generally, the electronic means for the involvement of citizens into the decision-making of local authorities are rather underdeveloped in the countries studied. In CZ, ICT are used by some cities in order to obtain feedback via e-discussion forums, input for participatory budgeting (with which some municipalities have been experimenting for some time) or initiatives focusing on citizens' involvement in strategy formulation (Brno 2050 – see Špaček 2018; fajnOVE in Ostrava). Only Brno has initiated a participatory budgeting project used for the whole Brno territory. In Ostrava and Prague, participatory budgeting initiatives have been implemented only by some of their city districts. In HU, there are rare examples of participatory budgeting and planning. In RO, a growing number of cities use dedicated online platforms for participatory budgeting (Cluj-Napoca, Oradea, Turda, etc.). Some cities use either dedicated tools or social media to collect feedback or to ask for proposals as input for the decision-making process.

Services	Score given			Comments – summary
	CZ	HU	RO	
Application for childcare	4.5	4.5	2	In CZ, municipalities are responsible for primary education (kindergartens and primary schools). Application procedures may vary. In the case of the three largest cities, only in Brno is an e-tool available for applications for childcare on the whole city territory. In Ostrava and Prague, it is decentralized to individual city districts. In HU, this is either a local service (kindergarten) or a national service (primary school). There are some cities/districts where downloadable forms, or online services are available for kindergarten registration. For primary school enrolment, a new, central service has started this year (with limited functionalities) on the public education e-service portal (https://eugyintezes.e-kreta. hu/kezdolap) which is still under development, but will enable entirely online application in the future. In RO, there is no national or local online service in this area, everything happens on paper and face-to-face. Information describing the service and related requirements are available either on the education ministry website or on the local municipalities' websites.
National score (out of 80)	42.5 (53 %)	33.5 (42 %)	34.5 (43 %)	

Source: Authors evaluation.

Our research suggests that the current situation in the digitalization of the core administrative services for citizens may be determined by the national approach to e-government policy, the level and readiness of legislation for digitalization and the way the service delivery is organized (centralized, decentralized, mixed). Our results somewhat mirror the findings of the latest eGovernment Benchmark (presented by Tinholt et al. 2017 and 2018), where Czechia is ahead of the other two countries with a similar performance. To put our findings into context, we examined the environment and history of eGovernment development in the three country.

The available information indicates deficiencies in the strategies concerning the digitalization of core administrative services for citizens. In all three countries, the e-government policy has been developing since the late 1990s, and the first national public-administration portals were launched early in the new millennium, usually in 2003 or 2004. Still, by mid-2019, the digitalization of core administrative services is limited to the description of life events and downloadable forms, and the handling of these frequent administrative procedures is not facilitated by ICT tools. This may be determined by a former focus of e-government policies on gov-

ernment-2-businesses services (which is apparent in the depth of digitalization of e-taxing in the three countries and also developments in e-procurement). Only at the end of the first decade of the new millennium were more citizen-oriented tools launched in these countries – e.g. the "customizable personal electronic administration user interface" for the central e-government portal (https://szuf.magyarorszag.hu/, launched in January 2018, for general introduction, see Orbán 2019), the creation of the "private virtual space" for each Romanian in 2018, or the Czech POINT project (developed since 2008) or data boxes (since July 2009) in Czechia. In Czechia, for instance, there were a lot of improvements made in 2018, when a Citizen Portal (https://obcan.portal.gov.cz) was launched (officially it was launched on 7 August 2018), and citizens can access the portal through their authorization into the data boxes system or through an e-identity. The recent "relaunch" or restructuring of the main governmental portal can be a good indication that these countries move in the same rhythm, reacting in the same way to the challenges of a changing environment.

Great expectations are linked with new eIDs and new legislation (approved or discussed) on the rights of citizens in the digital age concerning the means of communication that are to be used on principles governing the delivery of public services. For instance, in Hungary, a comprehensive eGovernment law (Act No. CCXXII. on general rules of electronic administration and trust services), adopted in 2015, sets out the general rules of electronic administration, the relationship between the citizen and the public-administration bodies providing e-administration services, and many more areas (interoperability rules, eIDAS implementation, rules on authenticity of electronic and paper-based documents). The Act was rolled out over a two-year period, and an implementing decree was adopted during this period, including the detailed set of rules on eAdministration also in terms of the so called "regulated electronic administration services". The eAdministration Act entered into force on 1 January 2018. The Act compels most public-administration bodies and some other institutions (e.g. courts) to provide electronic channels and services (where physical presence is not required by law). Citizens can choose whether they want to contact public administration by electronic means or in person. For business organizations, the use of online services is mandatory, as they can access their digital mailbox for official communications (Company Gate, somewhat the business equivalent of the Client Gate for citizens, which allows the secure identification of the users online) with public-administration bodies. The eAdministration Act also stipulates that public-administration bodies are considered cooperating bodies, which means they have the right to obtain data and information already available or collected by another cooperating body. No such general legislation is approved in Czechia or Romania, but time will show to what extent the present expectations were exaggerated. Similar reservations are relevant regarding the recent eID legislation as approved in Czechia (in Romania, the relevant legislation is still pending in Parliament).

As for Czechia, the findings clearly indicate that digitalization of the core services for which the national level is responsible is rather low, compared to local services. National services are not interlinked more with available electronic means of communication (data boxes) and ways of electronic conversion of the documents (this can be done at the called Czech POINTs). The research indicates that in the case of the core services for which the local level is responsible, some tools of simple or advanced e-transactioning are often available. But in Czechia, there are more than 6,200 municipalities, and the level of their digitalization is determined by the level of their e-government. In the case of large cities, the provision of some of the core services may be decentralized to their city districts and may not be standardized on the central (i.e. city) level. Only Brno offers more centralized services in the case of the core services surveyed. There are various factors that might determine this situation. The most important (subject to further research) may be enumerated (Špaček 2015, 2019):

- insufficient strategic prioritizing (there has been no clear focus on core administrative services for citizens in e-government national policies as well as in programmes on public-administration reforms);

- insufficient legislation (current legislation sometimes inhibits the digitalization of the services);

- insufficient innovative thinking and inclusion of stakeholders into policy- and service-delivery designs (e-government policy has been designed, implemented, and evaluated in a rather top-down direction);

- a problem of departmentalism (projects of individual ministries are sometimes rather separated, which also emphasizes the importance of e-government coordination).

Following the research of their Hungarian colleagues, Pásztor and Popovics (2015) pointed to the lack of an integrated approach in establishing e-government services (public authorities require the submission of client documents in different ways) and criticized various aspects of the use of e-government services in Hungary (technical requirements, language used on e-government sites). They also recommended the improvement of the necessary skills of citizens. In 2017, with regard to e-government development in Hungary and values of benchmarking indicators, Hajnal argued that "most e-government development projects and efforts fell into the 'nice-to-have' category rather than into the 'must-have' one. This means that the citizens may – but, because of the low digital literacy and the associated high 'learning costs' of using e-gov services – actually frequently do not choose the e-gov services instead of the traditional ones. The voluntary uptake is thus limited in many segments of public-administration clients. On the other hand, in the business sector, where uptake in some functional areas is compulsory, overall progress is likely to have occurred." Another reason behind the low uptake is the limited knowledge

of administrative procedures among the citizens and the recent development of Governmental Windows, easy to access physical one-stop-shops for administrative services (Csótó 2019b). Additional reasons of the current state can be found in the work of Aranyossy (2018), who emphasized that the Hungarian government can further increase the use of e-government services by influencing effort expectancy, trust in the internet, facilitating conditions, user experience, or habits. In Hungary, the following additional determinants of the current situation can be identified (Borovitz et al. 2007; Budai et al. 2018; European Commission 2019):

- responsibilities for e-government are shared between many agencies and ministries and sometimes there are 3 or 4 ministries that have their say in e-government development; different agencies sometimes develop different projects without sufficient mutual communication, which hampers necessary back-office reorganization;

- ICT development strategies and public-administration reform programmes were not always supplemented by more specific e-government strategies or action plans that would give a clear guidance to the digitalization process;

- changes in legislation do not cope with the speed of technological development;

- from the citizens' point of view, the old national portal is running in parallel with the new one since the launch of the latter, and also many projects at the moment are working "under the hood" on interoperability, on national registers and on general electronic services for public-administration bodies to help them create user-friendly e-services – there are not many tangible results yet for users as the planned ecosystem is not fully implemented at the moment.

According to Stamule (2018), Romania faces a paradox regarding the digitalization of public administration. As she further describes in the study, although the ICT Industry is growing at a very fast pace, and more and more ICT specialists are available, it seems that the central and local governments are obstructed in the process of delivering e-gov services to the population. Some of the reasons for this obstruction are, according to her, rooted in the cultural background of the political elite, in the legislation for ICT engineers and in the strategy of the state regarding the size of the government and the number of employees in the public sector. As for the reasons why the situation in Romania is what it is, the following issues are relevant (Urs 2018, revised; European Commission 2018; Nicoară 2018; Tsonev et al. 2016; Șandor 2012):

- Lack of political consensus on the strategic direction of e-government development in Romania. Changes in government usually led to changes in strategy, which led to lost time and resources.

- Lack of political support. E-government did not have a backer with the political clout to push and keep the issue on the policy agenda.

- No coordinating institution. The official body in charge changed multiple times, and every now and then there were multiple agencies, with overlapping responsibilities (at different times, The Ministry of Communications and Information Society, The Prime-Minister Chancellery, The Techno-Economic Council, The Office of Romanian CIO, and various departments inside the big ministries were all involved in designing and implementing e-gov projects). Despite this, or maybe because of it, none of these institutions had the overreaching authority to censor the actions or implement changes in other ministries.

- Glacial implementation of national infrastructure. National registries are still works in progress, interoperability is just beginning to take shape, a national authentication instrument is perpetually postponed, standards are just being created.

- Lack of ICT specialists inside the government at all levels. Professionals in this field are highly sought after at present, and the public sector is not an attractive career option for them. Almost nothing was done to convince ITC specialists to choose the government over private companies. Nonetheless we could mention the GOVITHub initiative, a short-lived attempt of a technocratic Romanian government to harness the expertise and enthusiasm of the Romanian ICT professionals. A number of digitalization projects were initiated (some were even completed), but most of them were abandoned since – the following political governments' relationship with the ITC specialists were, for a number of reasons, strained.

- Sluggish legislative changes. The legislation necessary for implementing e-government is slow to take shape. Many public servants adopt the view that if the law does not stipulate it, it is not allowed. Important pieces of legislation remain non-existent or incomplete.

- Slowly increasing demand of more and better online services from citizens.

If we compare the challenges and difficulties in the three countries, we can see many similarities (e.g. lack of real strategic thinking, legislative issues, organizational imbalances) that explain the results of our survey. All three countries are eager to develop this field; in Hungary, the national level and central solutions are in the focus at the moment, while in Czechia, bigger local governments seem to move faster, and both in Czechia and Romania, utility providers and local transport companies are more advanced according to our pilot findings.

5. Conclusions, limitations and future work

Our paper presented first the results of our pilot research on the digitalization of core administrative services in Czechia, Hungary and Romania. Taking into ac-

count the literature available to date, it is a first attempt of its kind, even if mainly a qualitative study.

Results show that each country has areas that are more advanced and some that are not well developed. A hypothesis for another paper is that the areas on which the countries focus is influenced by the type of administrative system each country has developed (Hungary is more centralized, and as such services linked with participation in the decision-making process or direct contact between citizens and institutions are less of a priority; Romania is more decentralized, and central coordination in e-government development is lacking; Czechia has a more balanced approach, without glaring score differences between services offered by the central and local government.

Our research suggests that the current situation in digitalization of the core administrative services for citizens may be determined by the national approach to e-government policy and coordination of the e-government policy, the level and readiness of legislation for digitalization and the way the service delivery is organized, regardless of technology (what tasks are centralized, decentralized, or executed by central as well as regional/local administrative levels).

All three countries are roughly at the same level of electronic-government development (with the Czech Republic slightly ahead, basically because of the availability of local government e-services and the digitalization of services provided by different local providers), despite vastly different strategies and levels of centralization. This also confirms the findings of the last EU e-government benchmarks, but their focus is not the same (the approach is more oriented on life events and some of our core administrative services are not benchmarked as outlined in the above text). This could change in the future, after the results of their respective national strategies become visible, and we are also interested in applying our instrument to other CEE countries, with the clear aim of refining it.

In preparing the research framework, we tried to consider the deficits of the existing tools developed for measuring e-government maturity. We have not addressed all of them, but we did not intend to prepare a highly complex instrument. We admit that our assessment tool is a work in progress, while the others are established, more or less final and often rather costly to use. The fact that we obtained about the same results shows us that we are on the right path. We also believe that our model is more suited for the evaluation from the citizen-centred perspective, because in this endeavour it is better to start with what services and components are available to citizens (users) rather than to evaluate what processes have been integrated. That is why we do not explicitly work with different levels of integration, but more with different levels of e-transactioning with public administration. As outlined, we tried to link the stages more with the citizen/user perspective and individual steps (i.e. components of a service/an administrative procedure) that can be done online. We build our tool on the assumption that for

a user it is not necessary to understand the level of integration of services, because a user is facing various levels of transactions when actually experiencing the available e-government services.

Our ambition was to outline a preliminary picture of a context in which research on the digitalization of core administrative services to citizens (services from the G2C area) is basically missing, although there has been a hype about the potential of e-government for improved service delivery to citizens. That is also why this paper is rather descriptive.

Our next research endeavour should focus more on determinants of the current situation based on data collection from sources other than websites related to life events. The framework used was mainly supply-centred (although it was organized around service components available to users) and did not consider the perspective of users too much.

In the future, the method should be polished and elaborated more, in order to minimize the possibilities of giving heterogeneous scores. Also, components of individual services should be linked more to their potential digitalization in the evaluation framework. Still, we believe that the instrument is easy to use for quick qualitative comparisons between countries or cities and can bring first input data for further analysis. We would also like to attract researchers from other countries to join our efforts.

The creation of a more complete list of services that takes into consideration not only those offered by the central government and that is visited and updated periodically is also something that we would look into in our future research. A doubling of this type of research with a perception analysis of the services analyzed could also bring interesting results.

Also for future articles we should revisit the list of services and make sure that their level of complexity is not widely different (or if it is, we should look into weighting our scores differently).

Our research suggests that future studies should be more concerned with the following questions:

- What is the situation in the whole CEE region in the digitalization of core administrative services for citizens?

- What are the determinants of the situation according to the responsible bodies?

- How can the framework be adjusted more to cope with individual components of the core administrative services for citizens. Can services be categorized and the framework adjusted accordingly?

- Are the available technology acceptance/innovation diffusion models suitable for explaining developments of e-gov in the CEE region?

Acknowledgement

References

Almuftah, H., V. Weerakkody and U. Sivarajah. 2016. "Comparing and Contrasting e-Government Maturity Models: A Qualitative-Meta Syhntesis." In *Electronic Government and Electronic Participation*. Available at https://bura.brunel. ac.uk/bitstream/2438/13415/1/Fulltext.pdf (last accessed 12 April 2019).

Andersen, K. V. and H. Z. Henriksen. 2006. "E-Government Maturity Models: Extension of the Layne and Lee Model." *Government Information Quarterly* 23, 236–248.

Aranyossy, M. 2018. "Citizen Adoption of e-Government Services: Evidence from Hungary." Available at https://www.researchgate.net/publication/325769045_ Citizen_adoption_of_e-government_services_-_Evidence_from_Hungary (last accessed 8 August 2019).

Borovitz, T., M. Csótó, L. Juhász, S. Molnár, A. Rab and L. Székely. 2007. "Elektronikus Közigazgatás Éves Jelentés 2006" [Annual report on e-government services 2006]. *Információs Társadalom* 7(1), 61–85.

Brown, D. 2005. "Electronic Government and Public Administration." *International Review of Administrative Sciences* 71(2), 241–254.

Budai, B., B. Gerencsér and B. Veszprémi. 2018. *A digitális kor hazai közigazgatási specifikumai*. Budapest: Dialóg Campus Kiadó.

Chen, Y. Ch. 2010. "Citizen-Centric E-Government Services: Understanding Integrated Citizen Service Information Systems." *Social Science Computer Review* 28(4), 427–442.

Csótó, M. 2019a. "Mérni annyi, mint tudni? Az elektronikus közigazgatás közösségi mérőszámairól." *Vezetéstudomány – Budapest Management Review* 50(2), 14–31.

Csótó, M. 2019b. "Examining the Role of the Knowledge Gap as a Driver towards e-Government Service Adoption." In A. Nemeslaki et al. (eds). *Central and Eastern European eDem and eGov Days 2019*. Wien: Austrian Computer Society, 45–56.

European Commission. 2001. Summary Report – Web-based Survey on Electronic Public Services (Results of the first measurement: October 2001).

European Commission. 2018. *E-Government in Romania*. Luxembourg: Wavestone Luxembourg.

European Commission. 2019. Digital Government Factsheet 2019 Hungary. Available at https://joinup.ec.europa.eu/sites/default/files/inline-files/Digital_Government_Factsheets_Hungary_2019.pdf (last accessed 15 August 2019).

Fath-Allah, A., L. Cheikhi, R. E. Al-Qutaish and A. Idri. 2014. "E-Government Maturity Models: A Comparative Study." *International Journal of Software Engineering & Applications* 5(3), 71–91.

Garson, G. D. 2006. *Public Information Technology and E-Governance: Managing the Virtual State*. London: Jones and Barlett.

Gil-Garcia, J. R., S. S. Dawes and T. Pardo. 2018. "Digital Government and Public Management Research: Finding the Crossroads." *Public Management Review* 20(5), 633–646.

Hajnal, G., K. Kádár and E. Kovács. 2018. "Public Administration Characteristics and Performance in EU28: Hungary." In N. Thijs et al. *Public Administration Characteristics and Performance in EU28*. Available at https://publications.europa.eu/en/publication-detail/-/publication/ae181e42-9601-11e8-8bc1-01aa75ed71a1 (last accessed 8 August 2019).

Heeks, R. 2006. *Implementing and Managing eGovernment*. London: Sage.

Homburg, V. 2008. *Understanding E-Government: Information Systems in Public Administration*. Oxon: Routledge.

Ifinedo, P. and M. Singh. 2011. "Determinants of eGovernment Maturity in the Transition Economies of Central and Eastern Europe." *Electronic Journal of e-Government* 9(2), 166–182.

Janowski, T. 2015. "Digital Government Evolution: From Transformation to Contextualization." *Government Information Quarterly* 32, 221–236.

Laposa, T. 2017. "The Digital Transformation of EU-Cohesion Policy: How to Measure the Matury of e-Cohesion Services." Paper prepared for the NISPAcee 2017 conference.

Layne, K. and J. Lee. 2001. "Developing Fully Functional E-Government: A Four Stage Model." *Government Information Quarterly* 18, 122–136.

Lee, J. 2010. "10 Year Retrospect on Stage Models of e-Government: A Qualitative Meta-Synthesis." *Government Information Quarterly* 27, 220–230.

van der Linden, N., A. Groeneveld, G. Cattaneo, S. Aguzzi and F. Pallaro. 2017. "eGovernment Benchmark Framework 2012–2017." Method Paper for the benchmarking exercises (comprehensive rules from 2012 to 2017). Available at https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=55174 (last accessed 5 November 2019).

Luna-Reyes, L. F., J. R. Gil-Garcia and G. Romero. 2012. "Towards a Multidimensional Model for Evaluating Electronic Government: Proposing a More Comprehensive and Integrative Perspective." *Government Information Quarterly* 29, 324–334.

Luna-Reyes, L. F., R. Sandoval-Almazan, G. Puron-Cid, S. Picazo-Vela, D. E. Luna and J. R. Gil-Garcia. 2017. "Understanding Public Value Creation in the Delivery of Electronic Services." In M. Janssen, K. Axelsson, O. Glasey, B. Klievink, R. Krimmer, I. Lindgren, P. Parycek, H. J. Scholl and D. Trutnev (eds). *Electronic Government*. Berlin: Springer, 378–385.

Madsen, Ch. Ø., J. B. Berger and M. Phythian. 2014. "The Development in Leading e-Government Articles 2001–2010: Definitions, Perspectives, Scope, Research Philosophies, Methods and Recommendations: An Update of Heeks and Bailur." In M. Janssen, H. J. Scholl, M. A. Wimmer and F. Bannister (eds). *Electronic Government*. Berlin: Springer, 17–34.

Meyerhoff Nielsen, M. 2017. "Citizen Use of Government eServices: Comparing Use, Governance and Cooperation Models in Estonia and Georgia." Paper prepared for the NISPAcee 2017 conference.

Ministry of Interior, Deputy State Secretary for Information Technology. 2018. "Elektronikus közszolgáltatásokat és ügyfélszolgálati tevékenységet összefoglaló monitoring jelentés." Available at https://nyilvantarto.hu/letoltes/statisztikak/2018_evi_adatokat_tartalmazo_monitoring_jelentes.pdf (last accessed 9 October 2019).

Moon, M. J., J. Lee and Ch. Y. Roh. 2014. "The Evolution of Internal IT Applications and e-Government Studies in Public Administration: Research Themes and Methods." *Administration & Society* 46(1), 3–36.

Müller, S. D. and S. Skau. 2015. "Success Factors Influencing Implementation of E-Government at Different Stages of Maturity: A Literature Review." *International Journal of Electronic Governance* 7(2), 136.

Nicoară, A. 2018. *România digital – Istoric. Lecții învățate. Opțiuni de viitor. România digital: Concepte și instrumente operaționale*. București: Editura Club România.

OECD. 2009. "Rethinking e-Government Services: User-Centred Approach." Available at http://www.oecd.org/document/7/0,3343, en_2649_34129_43864647_1_1_1_1,00.html (last accessed 16 December 2009).

Orbán, A. 2019. "The New Customisable Electronic Administration User Interface in Hungary." In A. Nemeslaki et al. *Central and Eastern European eDem and eGov Days 2019*. Wien: Austrian Computer Society, 83–95.

Pásztor, M. Z. and A. Popovics. 2015. "Use of e-Government Services in Relation to Internet Use and Coverage." Available at https://www.researchgate.net/publication/279061310_USE_OF_EGOVERNMENT_SERVICES_IN_RELATION_TO_INTERNET_USE_AND_COVERAGE/link/5589ac2208ae4e384e25fe61/download (last accessed 8 August 2019).

Rana, N. P., Y. K. Dwivedi and M. D. Williams. 2013. "Analysing Challenges, Barriers and CSF of eGov Adoption." *Transforming Government: People, Process and Policy* 7(2), 177–198.

Randma-Liiv, T. 2008. "New Public Management Versus the Neo-Weberian State in Central and Eastern Europe." *The NISPAcee Journal of Public Administration and Policy* 1(2), 69–82.

Rose, W. R. and G. G. Grant. 2010. "Critical Issues Pertaining to the Planning and Implementation of E-Government Initiatives." *Government Information Quarterly* 27, 26–33.

Şandor, S. D. 2012. "ICT and Public Administration." *Transylvanian Review of Administrative Sciences* 36E, 155–164.

Schuppan, T. 2009. "E-Government in Developing Countries: Experiences from Sub-Saharan Africa." *Government Information Quarterly* 26(2009), 118–127.

Snead, J. and E. Wright. 2014. "E-Government Research in the United States." *Government Information Quarterly* 31, 129–136.

Špaček, D. 2015. "E-Government Policy and its Implementation in the Czech Republic: Selected Shortcomings." *Central European Journal of Public Policy* 9(1), 78–100.

Špaček, D. 2018. Strategy formulation in a large city – the case of Brno 2050 Strategy. Working Paper prepared for the 2018 IRSPM conference, 11.–13. 4. 2018, Edinburg, UK, not published.

Špaček, D. 2019. *Public Administration Characteristics in the Czech Republic*. Draft report prepared within the EUPACK2 project and finalized in March 2019, not published.

Stamule, T. 2018. "Public Administration Characteristics and Performance in EU28: Hungary." In N. Thijs et al. (eds). *Public Administration Characteristics and Performance in EU28*. Available at https://publications.europa.eu/en/publication-detail/-/publication/90311e18-95fe-11e8-8bc1-01aa75ed71a1 (last accessed 8 August 2019).

Tinholt, D. et al. 2017. *eGovernment Benchmark 2017: Taking Stock of User-Centric Design and Delivery of Digital Public Services in Europe.* Final Background Report: Volume 2. Available at https://www.capgemini.com/wp-content/uploads/2017/11/2017-egovernment-benchmark_background_v7.pdf (last accessed 10 April 2019).

Tinholt, D. et al. 2018. *eGovernment Benchmark 2018: Securing eGovernment for all.* Background Report. Available at https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=55487 (last accessed 12 April 2019).

Tsonev, I. et al. 2016. "Re-Designing Public Services for the 21st Century: Comparative Analysis of the e-Reforms in Estonia, Bulgaria, and Romania." Available at https://www.liberalforum.eu/wp-content/uploads/2018/09/Redesigning_public_services_ENG_FINAL.pdf (last accessed 8 August 2019).

Twizeyimana, J. D. and A. Andersson. 2019. "The Public Value of E-Government: A Literature Review." *Government Information Quarterly* 36, 167–178.

United Nations. 2018. *E-Government Survey.* Available at https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018 (last accessed 12 April 2019).

Urs, N. 2018. "E-Government Development in Romanian Local Municipalities: A Complicated Story of Success and Hardships." *Transylvanian Review of Administrative Sciences* 55(E/2018), 118–129.

Yildiz, M. 2007. "E-Government Research: Reviewing the Literature, Limitations, and Ways forward." *Government Information Quarterly* 24, 646–665.

Zahran, I., H. Al-Nuaim, M. Rutter and D. Benyon. 2015. "A Critical Analysis of e-Government Evaluation Models at National and Local Municipal Levels." *The Electronic Journal of e-Government Volume* 13(1), 28–42.

Zhang, H., X. Xu and J. Xiao. 2014. "Diffusion of e-Government: A Literature Review and Directions for Future Directions." *Government Information Quarterly* 31, 631–636.

Zhao, F., K. N. Shen and A. Collier. 2014. "Effects of National Culture on e-Government Diffusion: A Global Study of 55 Countries." *Information & Management* 51, 1005–1016.