

THE ROLE OF DIGITALISATION IN THE PROCESS OF IMPROVING THE QUALITY OF URBAN PUBLIC SERVICES

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Abstract

There is a large body of research showcasing the enormous potential of digitalization in addressing several challenges public sector faces, such as bureaucracy, transparency, efficiency, a better interaction with citizens, providing successful examples and best practices. However, empirical research focusing on the user experience is not so well represented in the literature, despite the fact that one of the key goals of e-services is to fit the needs and expectations of the citizens. In this paper we focus on digitalisation from the perspective of the beneficiaries, who from a total quality management approach should be the first to inform digitalization initiatives, but who in most cases are just passive receivers of the digitalization outcomes. We place our attention on urban mobility services offered by Sector 4 Bucharest Municipality because both before and during the pandemic they proved to be highly digital. Our findings reveal both the users', as well as the public services providers' perspective, suggesting that although the perceived levels of digitalization and satisfaction with e-services are quite high, there is plenty of room for improving the quality of e-services by involving both citizens and employees in the design process and by boosting their level of digital skills.

Keywords: Digitalization, Public services, Perceived level of quality, Quality improvement, Citizens satisfaction.

1. INTRODUCTION

Nowadays society is facing profound and intense transformations in every field, which are significantly driven by the new information and communication technologies, as enablers of higher quality life standards and, at the same time, vectors of sustainable development in line with the needs of the community and society in general (Raiu, 2015). Digitalisation is part of our life and the public sector, particularly public administration, is rapidly transforming and employing the technology instruments to support the citizens, the community, in order to offer quality services and, implicitly, a higher life standard (Urs, 2022). We are witnessing a quickly evolving digital society and economy, embodied in the e-

government paradigm which provides the public services by means of online platforms focused on the needs of the citizens (Colesca & Dobrica, 2018).

Along with the dissemination of digital transformation and digitalisation concepts, the integration of physical and digital systems, creating intelligent services and products and creating innovating business models have become inevitable. The digitalisation requires large-scale and comprehensive transformations in several dimensions, such as business model, operations, culture and the entire value of the system, offering improvement in various aspects of the business, such as customisation, efficiency and security (Ismail, 2017). When this transformation, which provides unique opportunities to create and capture value, will succeed, citizens and enterprises will benefit from a better access, while governments will be able to remodel the global economy by making substantial savings (Eggers & Bellman 2015; Negoită, 2015).

Digitalisation has always been an important issue, but during the pandemic it became even more popular. With the onset of the Sars-Cov 2 virus, changes took place in all society areas, generating the need to rethink the operating ways, as well as service provision for all organisations, especially public ones (Raiu, 2021). To this effect, digitalisation plays a particularly important role, especially if we call into question the quality of the public services, because providing online services is not that difficult, as it is to make sure that these services are qualitative and satisfy citizens' needs.

This paper aims at identifying peculiarities of digitalisation process in the the public service provision, placing special interest on the role of digitalisation in improving the quality of the public services, by using the Urban Mobility Unit from the Sector 4 Bucharest Municipality (UMUS4) as exploratory case study. The research is based on the inquiry method and two research instruments were employed, an interview and a questionnaire. The interview was carried out with an employee holding a managerial position within UMUS4 and the questionnaire was administered online to citizens from Sector 4 Bucharest.

The next section develops the theoretical framework for digitalization as major driver of change in the provision of public services in general and for improving public services quality in particular, followed by a description of the methodology and a justification for the case selection. The results of the interview

andsurvey are presented and discussed in a comparative manner. The paper concludes with suggestions for further research.

2. THEORETICAL ASPECTS REGARDING DIGITALIZATION AND QUALITY OF PUBLIC SERVICES

Digitalisation of public services has long been a hot topic on the agenda of worldwide researchers, generating both consensus and debates. Most authors share the opinion that the digitalisation of the public services changes the interaction between citizens and public servants (Lindgren et al, 2019), claiming that digitalisation requires new skills in order for citizens and public servants to interact more efficiently (Scholta et al, 2019). New digitalisation opportunities emerge, as both citizens and public servants have voluntary as well as mandatory interactions with the government by means of technology and these interactions range from unstructured to highly structured one, based on the implemented technology or business processes (Androutsopoulou, 2019).

Furthermore, by generating and analysing large quantities of citizen data, these emerging digital technologies can create public services where the citizens' interactions with the public authorities are simple, quick, safe and corruption-free. On the other hand, the same technology progresses can be used in radically different purposes, such as limiting the access to public services, restricting and controlling the behaviour of the citizens and monitoring the moves of the citizens both offline, as well as online (Heeks & Bailur, 2007; Lindgren et al., 2019). Therefore, these emerging technologies are neither good, nor bad, but their implementation within public organisations might significantly impact citizens life, as well as the quality of the public services, both in a positive and a negative manner.

Starting from this idea, we further analyse a process which takes place between the citizen and the public administration providing a public service, namely the public meeting. According to Goodsell (1981), the public meeting may take place in various settings and by means of various forms of communication. The most obvious effect of the digital public services on the public meeting is that the internet-based technologies enable new communication channels.

Prior to the introduction of digital public services, this interaction used to take place primarily in a personal manner, in writing (using a letter/application, for instance) or by telephone. Goodsell (1981) treats computers and the digital technology as part of the internal administrative processes. Starting with the 1960s, the public sector organisations have felt the need to adopt new technologies to organize their work in a more effective and efficient manner (Pieterse, Ebbers & Madsen, 2017), such as storing and retrieving the citizens' data in shared databases. Additional functionalities were added in time and today

the internet-based technologies can facilitate communication and interaction by various channels (for example, digital mail, e-mail, digital forms, chat, IP telephony, mobile applications etc.). Furthermore, citizens can transmit information by online forms, similar with exchanging physical letters by mailing written forms to a public organisation. The information on various public services is now accessible from most of the devices with internet connection and the citizens can search for information without interacting with public officials or visiting a physical location.

Thus, the digitalisation of the public service provision has changed the forms of communication between the citizen and the public administration. The interesting part of the digital public services is that they also change the interacting framework between the citizens and the public officials.

In addition, the new technologies change the user of the public service (Pollitt, 2012). Indeed, the digital public services have the potential of increasing the access to public services for citizens who have previously found it difficult to interact with the public. The citizens who are bound in their homes due to disabilities or illnesses can interact on their own with the government, without other people's representation, when using digital services (Pollitt, 2012). Nevertheless, others might be excluded from the public service access by the same technology, because of the digital divide. Thus, citizens using e-services need particular abilities, but not all can or are willing to develop them. However, the citizens endowed with such skills and resources enjoy new and more flexible ways to interact with the public servants and with the government (Urs, 2022).

All over the world, governments are looking to transform their public administration to adapt to an ever-changing environment and address societal challenges. Transformational goals include achieving organizational change beyond the improved delivery of services to citizens, facilitated by the use of information technology to create public value and increase the responsiveness and transparency of governments (Connolly, 2014). Essential to the notion of public value creation is the reflection of ongoing changes in social values within a collaboration between different stakeholders (Moore, 1995). Thus, it can be seen to fit the context of the wider shift from the bureaucratic form of government to the pluriform, networked form of government; which aims to enable greater accountability of public administration (Stoker, 2006). Digital governance, or e-governance, is considered an enabler or even a driver of this transformation and refers to the use of information technology to improve government operations and serve its citizens. In practice, this is often achieved through the digitalization of public services and related changes to the institution (Fleur Van Veenstra, 2011). According to Faulhaber (2019) the quest for efficient systems inspired worldwide leaders to adopt the digital revolution. Digitalization penetrated many areas of interest and has a positive impact on people, businesses and governments. Thus, digital processes

enable governmental actors to have large access to data, interconnects governmental organizations, facilitating both planning and execution processes. New technologies help governmental departments to spare time, reduce paper consumption and most of all reduce waste.

The government is often concerned with the digitalization of services and the development of e-public services, although initiatives such as e-participation and open data have also gained importance. Digital public services can be understood as electronically mediated services, provided by public institutions, through which users (citizens and companies) and the providing organization co-create value through the users' consumption of the service (Jansson, 2013). Public e-services are strongly influenced and embedded in a specific organizational context and therefore should not be understood as simple web pages. In short, the digitalization of public services goes beyond the development of information technology; is an example of organizational development. As such, efforts to digitalize public services typically affect a multitude of stakeholders, often within different parts of government and society. Thus, in order to achieve the fundamental overhaul of government that is needed, the development of electronic public services is possible through organizational change (Fleur Van Veenstra, 2011). The development of digital public services is still associated with a lot of challenges, such as understanding the needs and expectations of users (Millard, 2015, Colesca & Dobrica, 2018), engaging stakeholders in different phases of development (Karlsson, 2014) and maneuvering in an often contradictory organizational context and ambiguous where both economic and democratic values must be taken into account (Jansson, 2013).

To date, most digital public services have been designed to mimic their analogue predecessors (eg digital versions of paper forms (Heeks, 2006). In fact, this is the most common purpose of digital public services. However, there are variations in the degree of human involvement in the provision of digital public services. The service may appear completely digital from the citizen's point of view, although most types of digital public services retain the involvement of public officials in the process of preparing cases and making formal decisions about the eligibility of the service. For this reason, digital public services have previously been discussed as simple mediators of public services (Lindgren & Jansson, 2013), meaning that these systems provide citizens with access to public services, although they do not provide the service itself (Lindgren & Jansson, 2013). Using Goodsell's (1981) categories, this can be compared to information sharing. However, with emerging digital technologies, digital public services no longer only exchange information. In other words, the goals of digitalization have changed over time to include the provision of public services. This implies that the entire service process is delivered through the digital channel, with examples including online applications for certificates and video meetings with public officials. In conclusion, the main objectives of the digital transformation is to improve and refine the

operational processes and to reduce costs by changing the key operations affecting products, services and processes (Matt, 2015).

3. METHODOLOGY

The purpose of this paper is to explore the role digitalization plays in the process of improving the quality of the urban public services, within a particular institution, Sector 4 Urban Mobility Unit, operating within the Bucharest Municipality.

For reaching the aim of the paper, four research objectives were set. First we looked into the particular features of the digitalization process within UMUS4. Second we investigated UMUS4 level of digitalisation, as perceived by the management of the institution and the citizens. Third we analyzed the degree to which digitalisation contributes to improving the quality of the public services provided by the UMUS4. Fourth we explored whether digitalization facilitates or hinders the access and provision of public service. Finally we tried to draw a comparative analysis of the citizens' perception versus the employees' perception regarding the role of digitalisation in improving the quality of the public services.

The research objectives were operationalized using both a qualitative and quantitative methodology. Thus, in an early stage of the research we performed desktop research in order to find out more about Sector 4 Municipality initiatives in the e-administration area, followed by a face to face semi-structured interview with an employee holding a management position, within UMUS4, who was very much familiar with the digitalisation initiatives and procedures. We opted for open-ended questions in order to gain as many explorative insights as possible, that later on helped us design and conduct an online semi-structured survey, administered to the citizens, as main beneficiaries of the digital services from Bucharest Sector 4. The structure of the questionnaire closely followed the conceptual framework and the approached research objectives and included 17 closed-ended questions, 2 matrix-type questions, as well as 1 open-ended question. The data collection took place between March and May 2022 and totalized a number of 123 respondents. This present research is meant to serve as a pilot research for a later broader study including all Bucharest sectors.

3.1 Case selection and data collection

We limited our case selection to Sector 4 Municipality because both during the pandemic, as well as prior to it, it was very active in initiating several projects aimed at digitalising public services (PS4, 2021; Ivanov 2022). Moreover, the leadership of this municipality was very much engaged with the topic of e-administration and also very open and supportive with our research. Therefore we decided to perform a

small scale analysis, limited to one single municipality, with the aim of expanding our research to all Bucharest municipalities at a future moment in time. Our research interest was very much captured by the Urban Mobility Unit within Sector 4 Municipality, which can be considered the "engine" of the computerised management of the documents within the Sector 4, dealing with various services, such as: online registry office, online payments, online application for parking space, filling in the forms online, scheduling appointments online, making online complaints, etc.

3.2 Case description

The Urban Mobility Unit with the Sector 4 Municipality (UMUS4) is a public institution subordinated to the Sector 4 Local Council and financed from public funds. UMUS4 is in charge with designing and implementing an integrated urban mobility strategy, correlated with the Urban Mobility Plan of the Bucharest Municipality, aiming at increasing pedestrians and traffic participants safety, especially in high risk areas, education and sanitary units and other public interest institutions. Moreover, UMU carries on studies on the levels of traffic, in order to optimise mobility and smart city solution for Bucharest Sector 4.

Within UMUS4 work 107 contractual employees, gruped into 4 organizational units. The Digital Transformation Service is in charge with and coordinates the activity of the subordinated compartments, according to the Sector 4 Urban Mobility Directorate's Organisational Chart and to the job description, also carrying out other attributions set by the General Director (DMU, 2022a). Subordinated to the Digital Transformation Service, there are 2 offices and one compartment.

The Digitisation and Archiving Office, performs the digitisation and archiving operations, including electronically, for all the institutions subordinated to the Sector 4 Local Council and provides record of all incoming and outgoing documents in the archive storage space based on the current record book (DMU, 2022a).

The Office for Digitalisation and Integration of Applications, coordinates and develops the Single Virtual Space of the Sector 4 Municipality, where it integrates all the applications into this single point of access for citizens to the provided digital public sevicees. The office also proposes, jointly with the Compartment for Digital Transformation Strategies, solutions for improving the quality of the public services provided, including internal digital process models for all the local authorities subordinated to the Sector 4 Local Council or the specialised body within the Sector 4 Mayor's Office, in terms of software and hardware (DMU, 2022a).

The Compartment for Digital Transformation Strategies elaborates the local strategy in the digital transformation area and coordinates its implementation, providing the monitoring of the undertaken

actions and the evaluation of the results obtained inclusively, with the aim of ensuring the efficiency of the effort to improve the quantifiable results. The same compartment also elaborates and coordinates the implementation of the local strategy for automation, robotisation and artificial intelligence, as well as the local plan for developing digital competences among citizens of the Sector 4, as well as within the local public administration of the Sector 4 (DMU, 2022a).

The Urban Mobility Unit of Sector 4 is considered to have the best presence on social media by means of the Facebook platform. The promoting of the services provided by the institution is made by the same platform, as well as by means of the official website (mobilitateurbana4.ro), which is very well organised and where public interest information can be easily accessed. UMUS4 is considered to be among the most digitalised local institutions, providing a clear and quick digital interaction with the citizens (DMU, 2022b).

4. FINDINGS

The employed methodology, using both a qualitative and a quantitative approach enabled us to reach several findings and compare the perspective of management of UMUS4 with the perspective of the citizens using services provided by UMUS4.

The scope of the interview was to reveal particular features of the digitalization process within UMUS4. The interview was conducted with an employee holding a managerial position, in charge with monitoring the digital transformation at UMUS4 level, who acknowledged that the main driver for digitalization was the aim to replace queues with the possibility for citizens to complete several administrative requirements online, from home. Starting from this goal, which is totally client-driven, the interviewer highlighted that in order for citizens to benefit of services from the comfort of his homes, public institutions must radically transform their processes, by making them simpler, more effective and efficient.

Regarding the level of digitalization of UMUS4, the interviewer considers it is a high one, as the institution managed to eliminate citizens need to come in person to solve different administrative issues. An online platform is responsible for the interaction with citizens, from payments to parking lots , contractual modifications and so on. Moreover, Sector 4 citizens have a mobile application, that enable them to know in real time the status of any administrative request.

As for how digitalisation impacts the level of both employees and citizens satisfaction, the interviewer stated time-efficiency is the key driver for satisfaction. We also asked weather the development of digital public services helps the institution to better understand citizens needs. The interviewer admitted there is

room for improving customer feedback and suggested that digitalization enables collecting big samples of data, which can be statistically analysed in order to gain a deeper understanding of citizens needs and expectations and consequently manage to allocate resources in a more effective manner, according to real priorities. The interviewer stated that digitalization is for sure important for UMUS4, but not because it is a popular global trend, but because it serves to satisfy an existing need. However, later on he acknowledged that UMUS4 is not trying to "reinvent the wheel", but to implement models that proved to be successful in other settings.

Despite the increased perceived level of digitalization within the institution, the interviewer pointed out that the main challenges faced by UMUS4 is engaging employees and citizens in the digitalization process. Thus, on one hand digital services bring along profound changes in the way people were used to work, while on the other hand the challenge is to clearly identify users needs so that no category of beneficiaries feels discriminated „because a retired person’s needs are totally different from the needs of a 30 year old person”. If public servants are regularly trained in order to improve their digital skills, for citizens who are not digital alphabetized, the municipality provides assistance services. However, for citizens who lack both the digital skills and technical devices, an in-depth explanation of the process is meant to help gain digital readiness. This particular attention paid to employees and clients is not only a quality management principle, but also a tool for overcoming resistance, which commonly stems from a lack of understandability and explainability of digitalization outcomes (e.g. digitalization initiatives tend to often disrupt daily routines, imply higher working loads on the short term etc.) (Newmann et al., 2022).

For UMUS4 the pandemic was a lever for the digitalization process as it accelerated very much the speed of the transformations and at the same time it made citizens less reluctant to communicate online with public institutions. In terms of future plans, the interviewer talked about the goal of continuing the automatization of more and more processes aimed at improving the interaction with citizens, by interconnecting the different databases of different public entities, otherwise "there is the risk to maintain a vicious circle".

The online survey revealed that the most prominent features that citizens associate with public sector digitalization are: simplified administrative procedures (24%), followed by easier, rapid and safe interactions with public employees (21%), improved access to information (19%), better quality services (18%) and improved communication with public institutions, using new channels (15%).

However, when it comes to the most obvious results of the digitalization process citizens rank first improving service quality (20%). Other significant outcomes of e-services are administrative simplification (17%), easiness in communication with public authorities (17%), increased transparency and avoiding paper

waste (each 14%). Moreover, 67% of the respondents consider digitalization plays a significant role in the process of increasing service delivery.

Despite the fact that the perceived level of digitalization of public administration in Romania is rather low (45% consider it is underdeveloped, while 37% perceive a mediul level of development), citizens seem rather satisfied with the level of digitalization of the services provided by UMUS4 (more than 80% of respondents display a medium and high level of satisfaction and over 50% would highly recommend UMUS4 e-services to other citizens).

When asked to rate their perception on the urban mobility services provided by UMUS4, 50% of the respondents totally agree that their quality has significantly improved since the digital transformation started in Sector 4 Municipality. However, 90% consider that UMUS4 should invest more in digital infrastructure, which is the main aspect that discontents citizens.

When required to express their opinion related to whether digital development might hinder the access of people to public services, over 60% of the respondents considered that access to information is limited because of digitalisation, pointing out to the limited digital literacy skills, as well as scarcity of instruments and devices needed in order to be able to use e-services. Thus 57% of the respondents agree with the affirmation „The use of digital services implies citizens have or need to develop digital skills”), so if citizens lack both the skills and the needed devices, access is reduced or even impossible.

Regarding the aspects that influence the perceived level of satisfaction with the quality of urban mobility services provided by UMUS4, reduced waiting time for solving administrative issues is the most significant aspect for citizens (60,6%). Also, the majority of the respondents consider digitalization is an effective tool for increasing public transparency and fighting corruption, which are considered to be aspects that significantly influence citizens' perception related to public services quality.

Our findings also suggest that citizens' satisfaction degree in relation to the digital services varies according to age, gender and income. Thus, young people between 18 and 30 years of age are more satisfied with the quality of UMUS3 e-services, by comparison with citizens ageing over 30. Also female respondents and high income respondents tend to be less content with the quality of digital services.

5. CONCLUSIONS

Public service provision is influenced by the changes occurring worldwide, particularly by the digital evolution and transformation. The last two years have been a challenge both for the citizens, as well as

for the institutions regarding the use, respectively the provision of general interest services, as it required adapting to the online environment and education/ training in this respect. This research aimed at analysing the role of digitalisation in the process of improving the quality of public services within the Urban Mobility Unit of Sector 4, in the municipality of Bucharest.

The main results of the interview and questionnaire show that the perceived quality of the digital services in Romania is an average one, generating a similar average satisfaction among citizens. However the quality of the digital services within UMUS4 is perceived to be a high one. In the same line, according to the data obtained following the administration of the interview, it appears that the perceived level of digitalisation from the UMUS4's perspective is also high. Despite there are some challenges, nevertheless the institution considers itself to be highly digitalised due to an almost complete elimination of the citizen's need to be physically present in the institution for solving administrative issues. There is an online platform for everything related to the interaction with the institution, starting with the payment section and continuing with requests for parking spaces or contract changes and more, and also the citizens of District 4 have at their disposal a mobile application developed by UMDD4, application that allows them to send or track in real time the status of any request to the District 4 City Hall.

While the rhetoric of the UMUS4 representative suggests that digitalization should not be viewed as a popular trend, but as a tool to address real needs of the citizens, the reality seems a bit contradictory as a proper client-oriented planning of the digitalization process and incorporation of customer feedback is not evident neither from the secondary data we found, nor from the data collected during the interview and questionnaire administration.

Another objective of the research consisted in the comparative analysis of the perception of citizens versus the perception of employees regarding the role of digitalization in improving the quality of public services. However, according to the answers obtained, both from the perspective of citizens and from the perspective of the leadership, digitalization has a significant impact on improving the quality of public services.

All the steps taken by the Urban Mobility Unit Sector 4 in order to increase the degree of digitalization in the institution are due to the idea supported by the employees, namely "the higher the degree of digitalization, the better the quality of public services". From here we realize that the digitalization process contributes significantly to the improvement of the quality of public services offered by UMUS4. Therefore,

accessing public services for citizens is also much easier thanks to digitalization, and access can only be limited if there is no desire to learn.

Regarding the provision of information to citizens, we have the same situation, digitalization facilitates this process and leads to the improvement of the most important indicator, namely administrative efficiency. An example in this respect is the digital archiving. All the data and information necessary to be able to offer quality services to the citizen are available to the staff of the institution, in such digital archives. In this way, the average response time to citizens' requests is shortened and, in certain situations, these responses are even automated.

Finally, the pandemic had a positive impact on the development of the digitalization process within UMUS4. Citizens had to adapt to interacting with institutions through the online environment, learn to submit requests and solve their problems also online. Most of them were satisfied with the way their needs were met, and even realized that it is much easier to access public services online. That is why once the state of alert ended, the situation did not change significantly, a large part of citizens continues to benefit from digital public services.

In conclusion, at the level of the Sector 4 Bucharest Municipality, digitalization is regarded as an important aspect in improving quality service delivery, especially in terms of facilitating access to public services and simplifying administrative procedure. Digitalization and satisfaction levels are perceived to be high, but our research suggests that there is still room for improvements as the customers and the employees perspective is not properly incorporated in the design phase of e-services. Moreover, it seems that the leadership of the Sector 4 Municipality supports the idea of "best practice solutions", that proved succesfull in other countries or institutions, instead of "home-tailored solutions". Despite these drawbacks, top management support, which is essential for artificial intelligence adoption is consistent and proactive within UMUS4 and therefor gives us strong intuition that Sector 4 Municipality is on a goodtrack, although this will imply considerable organizational resources, changes in organizational structures and culture and resistance from both employees and citizens.

6. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Digitalization is a very appropriate topic for a stakeholder approach research methodology. However, in this article we only investigated the perspective of the UMUS4 management and clients, without including the perspective of the employees, who from the quality management point of view are considered to be "internal clients". Moreover it is considered that only if employees are happy can customers be satisfied

(Neumann et al., 2022) and as research conclusions suggest one of the main challenges in digitalizing UMUS4 urban mobility services was directly linked to employees attitudes towards change.

Another limitation of our research has to do with the reduced number of respondents, together with the online technique chosen for administering the quantitative survey. The option for an online questionnaire was very natural in March 2021, when social distancing was still a requirement, but most probably this choice helped us reach citizens who have digital skills and miss those who lack such skills. Therefore, a future research direction should take into consideration a multi- stakeholder approach, using a face to face questionnaire. In conclusion, the present paper calls for more in-depth research aimed at investigating more municipalities.

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