# New Ways of Providing Public Services: Platforms of Service Provision and the Role of Artificial Intelligence: In the Light of the Development of the Hungarian Public Administration


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**Abstract** Platforms became important ecosystems in the economic life after the end of the twentieth century. In order to operate more efficiently, platforms as an ecosystem and technology are now widely applied by the different national public administration systems. However, platforms are mainly used by the central administration; the municipalities started to build their own systems. There are several limitations of the application of the platforms in public administration—the majority of them are linked to a lack of resources and expertise. Platforms can be even tools of a latent, 'stealth' centralisation, mainly because of the required access to the central data systems. It should be emphasised that the platforms—especially in the business (private) sector—are linked to artificial intelligence (AI) tools. However, compared to the business sector, the government sector has several specialties by which the application of AI is influenced. Therefore, these specialties and the possibilities of the use of AI by the Hungarian public administration are reviewed in our chapter.

**Keywords** Platforms · Platform services · Administrative platforms · AI and administration · Hungarian administration

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S. Benković et al. (eds.), *Digital Transformation of the Financial Industry*, Contributions to Finance and Accounting,
https://doi.org/10.1007/978-3-031-23269-5_10

## 1 Introduction

First of all, it should be emphasised that social systems have been transformed by the ICT revolution. This extremely rapid transformation has also brought significant changes to the economy, perhaps most notably in the last decade with the widespread adoption of platforms. Platforms can be approached from several angles: firstly, as a specific product development outcome, secondly, as a specific technological strategy, and thirdly, as an industrial economic phenomenon (Baldwin and Woodard 2009). Platforms can be examined from the perspective of market theory, technology management, and strategic management. However, platforms can also be analysed as a specific network, typically connected to the Internet, and as a specific system or as ecosystem. Platforms are interpreted by the market theory approaches as network interfaces connecting different groups and as systems that create value through a common architecture. The ability of the platforms to produce content and/or functionality is emphasised by the technology management approach. Similarly, these interpretations highlight that, on the other hand, they are standardised ecosystems which are highly interconnected and systemised. Corporate operation of the platforms as networks and systems of processes that create value is emphasised by the strategic management interpretations (Hein et al. 2020). These platforms that are most familiar to the general public are systems connected to the provision of services, including various entertainment platforms and systems (e.g. Netflix, HBO Max, Spotify), systems in the tourism sector (booking.com, Airbnb), and some personal service solutions (e.g. Uber, Taxify—now Bolt). However, the role of platforms is much broader than that: in fact, modern corporate governance relies extensively on these solutions, which can be easily adapted to your own corporate processes and to other companies' systems because they are standardised. Taking into account the impact and results of platforms in economic life, the administrative systems also have started to use platform-like solutions relatively early, at the turn of the millennium (Kim et al. 2022).

The aim of our chapter is to analyse the transformations of public service provision based on the digitalisation and platformisation. The theoretical and technical framework of these transformations has been examined by the chapter, the major field of public service provision which is impacted by the platforms, and last but not least, the impact of the transformation on the modern ecosystems and economics has been analysed.

## 2 Methods

The approach of the chapter has been mainly based on the approach of the administrative sciences. The theoretical framework of the platforms has been examined by the introductory part, as a framework of the analysis. This analysis was based on the methods of the management studies (Yablonski 2018).

As part of the analysis of the framework of public service platforms has been based on the methods of jurisprudence because the regulatory environment of this phenomena has been analysed. Our chapter focuses on the analysis of the regulation, and it focuses on the analysis of the legal norms, soft law documents, and partly the policy papers. Because the issues have a limited judicial practice, therefore, the judgements are just narrowly reviewed by our chapter (Evans et al. 2015). Secondly, the major fields of public service provisions have been examined by our chapter. Because the national legal systems are different, even in the European Union, our paper focuses on the analysis of a national—primarily the Hungarian—legislation and partly the legislation and regulation of the European Union (Bogdandy 2012). Thus, the regulatory issues have been part of the examination, but—as we have mentioned earlier—even the policy issues of these public services and platforms of them, and similarly the major economic data have been analysed. The data analysis is based on the review of the official statistical data, especially the data of the Eurostat.

Similarly, the social impacts of these changes have been part of the examination. The role of the AI and the technical possibilities have been analysed as well. The regulatory issues of the AI in the field of administrative tasks and public services are analysed by the chapter. The analysis on social impact is based on the brief examination of the quantitative statistical data. Similarly, social data provided by the national statistical offices are used by our review. Therefore, the chapter has not only a jurisprudential approach, but it has had a mixed, administrative methodology.

The 'platformisation' of the public services can be interpreted as a new phenomenon; the regulation and the statistical date offers limited information about it. However, this transformation has been analysed detailed by the literature, especially the literature on administrative and management sciences, and partly by jurisprudence. Therefore, it is important to review the major statements and results of the literature on the topic. Our chapter is significantly based on the analysis of the literature.

The major challenges and results of the transformations have been summarised by the chapter. Because this analysis focuses on the impact of these trends on economics, we would like to analyse the available and comparable economic data. The primary impact of the reforms on the government sector has been analysed by the chapter as well.

## 3 Hypotheses

The services of the business sector have been transformed by the introduction of the platforms, by which a new more effective and resilient ecosystem has been evolved. Platforms can be examined from the perspective of market theory, technology management, and strategic management. Public service provision—not only the traditional administrative services but even those services which are organised or performed by public bodies (e.g. health care, social care, education)—has been

transformed by the establishment of platforms (Kim et al. 2022). The ecosystem of the services has become more centralised because of the centralised nature of the platforms. However, the accountability of these services has increased, and the platforms offer a better possibility for the co-creation of these services, because the citizens are better informed, and they have access to that information which was formerly closed to them. The better accountability and the enhanced co-creation resulted increased the trust in these services. As part of the digitalisation and platformisation of the public services, the role of the artificial intelligence (AI) has increased as well (Kostrubiec 2022). It is emphasised by the literature that consumer protection of services (including public services) can be an important field where AI could be applied because of the neutral nature of artificial intelligence (Zawiślak-Białek 2022). It is mentioned that administrative decision-making is now not a field of the AI; however, the business platforms are partly based on AI solutions. Therefore, it has potential as well (Agarwal 2018).

Not only the traditional government services—such as e-administration and the e-decision-making—have been analysed by our chapter. The chapter examines the different public services which are provided by public companies, or which are controlled and supervised by public bodies (e.g. electricity, district heating). However, our analysis focuses on the platforms of the traditional universal services (human services), especially the platformisation of the health care, education, and social care services. It should be emphasised that the digitalisation and platformisation of these services have been increased by the impact of the COVID-19 pandemic.

If we look at the local level, it should be emphasised that the platforms have also been introduced in local government, but their wider use has been hampered by several factors, notably resource constraints, and they have become more important in metropolitan administrations. The ‘smart city’ projects are partially based on public service provision platforms, as an example of the influence on metropolitan administration. The (municipal) platforms, and in particular their link to central systems, also serve as a new centralisation factor: their use can contribute to the centralisation of public administration. Because ‘smart city’ projects are impacted by different AI solutions, this part of the analysis focuses on the application of AI in metropolitan administration as well.

Therefore, this new ecosystem can be considered as a Janus-faced one: in one part the centralisation of the systems has been increased, but the flexibility and resilience of these services have been strengthened by the enhanced access to information and by the improved possibility of the participation of the citizens.

These tendencies can be observed in the modern countries. These tendencies will be analysed by the examination of the Hungarian public administration and its socio-economic environment.

## 4 Evolvement and Development of Platforms in the Hungarian Public Administration

It is undeniable that the digital revolution has now reached the public administration systems. E-government brings many benefits. For example, customers are not tied to office hours, they do not have to meet officials, and they have easier access to information and a range of tools to help the administrative staffs make their decisions (Bowman and Kearney 2016). E-government is an umbrella term: in the literature it is used to describe government innovation and government information and services. The goal of e-government is often defined as paperless offices, meaning that electronic administration transforms paper-based processes into electronic processes (Wohlers 2010). E-government creates many ways for governments and citizens to communicate with each other. As a result, customers have become actors in the administrative system. Therefore, e-government can be interpreted as a tool for economic development. Simplified procedures and automation of decision-making can speed up procedures, which in turn can lead to a reduction in administrative costs. Taking into account the impact and results of platforms in economic life, some public administration systems started to adopt platform-like solutions relatively early, at the turn of the millennium (Ansell and Miura 2020). In the Hungarian public administration, several e-government systems have also emerged that ultimately fit the various descriptions of platforms: thus, the general government electronic administration system, the so-called (Administrative) Client Gateway, and its associated Central Identification Agent can clearly be interpreted as such a specific network and ecosystem.

If we look at the development of Hungarian systems, it could be highlighted that platform-like solutions have been firstly developed in the field of financial administration, mainly in the area of public revenue management. One of the first of these systems, which was later integrated into the Client Gateway portal, was the eBev (e-Declaration, eDec) system which, in addition to filing and electronic administration, soon had an electronic payment interface. Thus, it could be interpreted as one of the first Hungarian administrative platforms (Hoffman and Cseh 2020). Later on, several administrative sectors followed this pattern, firstly those which have been related to public revenues, such as social security and construction administration (EKÁER) systems. Various platforms have also been developed in other areas of traditional public administration. Thus, since 2011, the 'Robocop' *(Robotzsaru)* system in the police administration can be considered as such a platform-like solution (Horvayné Fehér and Munk 2011).

Platform-like solutions have also appeared in property register systems, including the electronic land registry system and the vehicle registry system as well. The range of these administrative platforms has been steadily expanding in recent years. These platforms were essentially related to administrative public authority functions, they were linked to the traditional administrative activities of public authorities, including the enforcement of public authority, and, to some extent, the supervision activities of the public authorities.

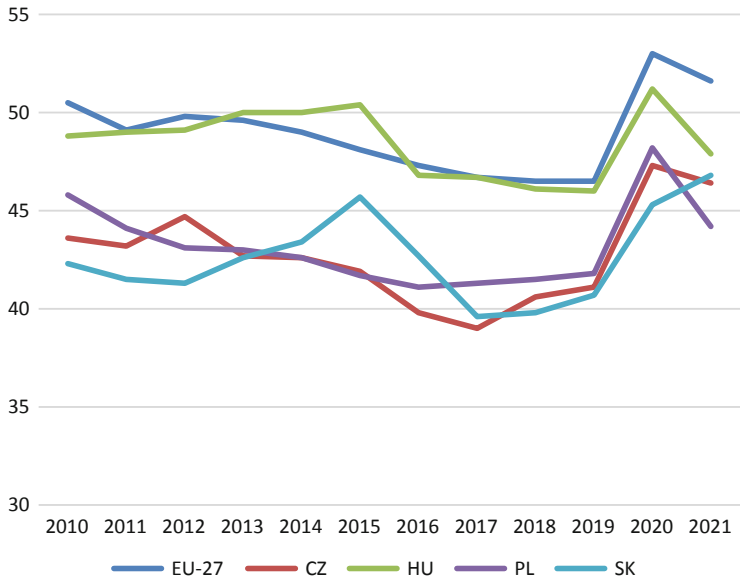


**Fig. 1** General government expenditures—Visegrád Countries and EU-27 (in the share of GDP) from 2010 to 2021 (Source: Eurostat)

Public administrations also provide a wide range of public services. Given that economic platforms have been particularly successful in the area of services, it makes sense that these solutions have also been introduced in the area of public services in the various public administrations (Ansell and Miura 2020). These platforms for service information and administration have also appeared in public services organised by the Hungarian public administration. These services have a significant role in Hungary. Hungary follows the continental pattern (Stiglitz 2020; Kuhlmann and Wollmann 2019) of the modern economies: the government sector is important part of the national economy in Hungary. The share of the government sector in the gross domestic product is the highest among the Visegrád Countries (Czech Republic, Hungary, Poland, and Slovakia) (see Fig. 1).

Public services have a significant role among government expenditures. However, the share of the human public service (especially the social care and health expenditures) in the GDP is lower than the European average; it can be considered as significant (see Fig. 2).

Thus, platform-like solutions have already emerged in the services provided by social security and, in particular, in health services, since the turn of the millennium. These systems have been adapted several times, and the services they provide and the data they handle have been continuously extended. By the mid-2010s, this had resulted in the emergence of a single space, the Electronic Health Care Space (EHCS) *(Elektronikus Egészségügyi Szolgáltató Tér, EESZT)*. The development of EHCS has not only increased access to data but also strengthened the potential of telemedicine, thus highlighting that it can also lead to changes in healthcare delivery.

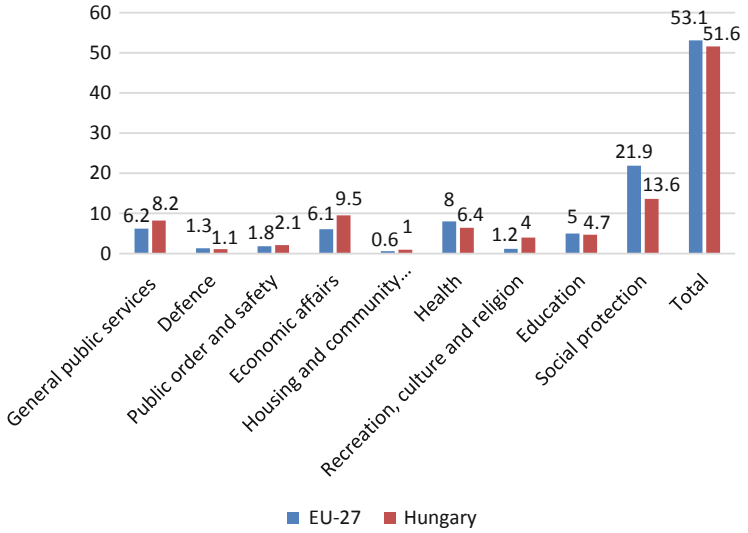


**Fig. 2** Government functions in EU-27 and in Hungary in 2020 (share of the GDP in precent) (Source: Eurostat)

The role of EHCS as a platform and tool for telemedicine has been particularly valued in the context of the COVID-19 pandemic over the last 2 years (Győrffy et al. 2020). Similarly, the COVID-19 pandemic has brought to the fore platforms in the field of education. The first platforms to emerge in higher education administration at the turn of the millennium were Electronic Education System (*Elektronikus Tanulmányi Rendszer, ETR*) and Neptun, with the associated platforms being linked and developed by individual higher education institutions in the same period to internationally available platforms for education, such as Coospace, Canvas, and Moodle, and the integration of tools for e-conferencing and classroom solutions (especially MS Teams, Webex, and Zoom). The importance of e-learning became prominent in the context of the restrictions and digital curriculum imposed by the COVID-19. In the second semester of the academic year 2019/20 and for most of the academic year 2020/21, the use of these platforms has significantly shaped the teaching work in the Hungarian higher education institutions. Similarly, during the 2010s, the use of the management and collaboration platform, the so-called *KRÉTAsystem* and the associated Digital Collaboration Space (DCS), which was developed in public education, increased significantly during the COVID-19 epidemic.

Although the use of platforms in public administration has also increased significantly in recent years, the personal nature of administration and the public services requires a wide range of face-to-face personal interactions. Thus, the use of platforms cannot, on the whole, replace the entire public service provision and management (Van Mart et al. 2019). In addition to the personal dimension, other factors that hinder the uptake of these tools are also present in the digital delivery of local

authorities. As will be discussed later, the fragmented nature of the local government system in Hungary means that the capacity of models that are necessarily smaller than state administration systems and based on the autonomy of local communities is much more finite, and the development of such a system requires significant financial and human capital—both IT and sector-specific expertise (Milosavljević et al. 2017). The role of platforms in local government administration is therefore very limited, and they are mainly used by larger municipalities. In any case, the use of these tools is already very much in evidence in these municipalities. Since the turn of the millennium, these larger municipalities have also started to use platform-based solutions for their new types of service organisation, thanks to the smart cities concept. In other words, platforms seem to have become a phenomenon specific to metropolitan municipalities (Anttiroiko et al. 2014).

As we have mentioned earlier, artificial intelligence is applied widely by platforms (Ullah et al. 2018). Therefore, the analysis of the role of the platform requires the examination of the role of the artificial intelligence.

## 5 The Role of Artificial Intelligence in Public Administration

### *5.1 Starting Points and Theoretical Framework*

The public administration (including its organisational structure, its operational mechanisms, and its staffing framework) does not (or cannot) remain unchanged and cannot be independent of the trends of the contemporary world, and thus it can be said that public administration is constantly in flux. One of the greatest challenges of our time is digitalisation in the broadest sense, which has required a reorganisation of both the public administration's approach to citizens and its infrastructure in all the countries of the world. I should be emphasised that however inevitable the emergence of the digital explosion in the public sector may be, experience to date—especially in the Central Eastern European (CEE) region—does not necessarily suggest that it is a complete success story. The reasons for this include the difficulty of taking organisational and procedural aspects into account at the same time, the slow and costly process of building infrastructure, and the general resistance to change (especially in human resources), which is also a classic barrier to innovation.

For the sake of completeness, however, the authors of this chapter cannot fail to highlight the undisputed virtues of optimal digitisation of public administration, which are also relevant to our study. The leading foreign literature is unanimous in the view that the use of proven digital tools can have a pull effect, which can legitimise the use of new technological tools in new sectors not previously affected by digitisation. This effect is reinforced by the fact that standardised platforms and other digital solutions from the competitive sector can be easily transferred to public

administrations, within certain scope and under certain conditions. In fact, this intermediary interactive online value creation is a phenomenon also known in the 'traditional' offline economy, which generally operates on the technology and infrastructure of a business. On the other hand, it should also be stressed that technological tools can be used to a greater extent to achieve and reinforce the objectives declared as goals to be achieved by national and EU public administration policy (e.g. customer focus, efficiency, and subsidiarity), particularly with regard to the activities of public authorities and the organisation of public services. In this context, we would like to refer to the indicators of the so-called DESI (Digital Economy and Society Index), which ranks the countries of the Central and Eastern Europe in the bottom third of the scale, in particular in terms of the efficiency of public services. According to the index, Hungary ranks 23rd, Slovakia 24th, Poland 25th, and the Czech Republic 18th, with slightly better indicators (DESI 2022).

## *5.2 Types of Public Administration and the Potential of AI*

In the context of the core activities of public administration, the relevant organisational law doctrine distinguishes between types of activities of a public authority nature, activities deriving from a position of organisational or proprietary power, and so-called non-public power activities (Fazekas 2015; Maurer and Waldhoff 2020). Because of the limitations of this chapter, only the core activities which are relevant to AI (such as strategy formulation, organisation of internal processes, information to customers, and substantive administration) and the scope of application of AI technologies linked to them are analysed by it.

As a starting point, it should be noted that policymaking can be understood more as part of governmental activity, despite the fact that planning itself has a specific legal basis in administrative law, and that management activity can be understood within an institution (and thus not in a public authority aspect). There are AI-based tools which can be used to support these activities (e.g. digitalisation of impact assessment, use of chatbots, use of machine vision, or speech understanding), but we will not focus on these in our study, and will therefore focus on technologies that can be used in interactions between customers (citizens) and public administration. In terms of substantive administration, there are two major issues that fundamentally determine the reality of the application of AI. On the one hand, a distinction must be drawn between administrative procedures initiated ex officio and those initiated at the request of the client, since these procedures are carried out by public administrations according to different logics, both in terms of perception (see initiation of the procedure) and clarification of the facts (see preparation of the decision). At this point, it can be concluded that in Hungary—basically in the field of financial administration—there are technologies that work for both types of procedure, but these are sector-specific solutions, all of which have a 'teething problem'.

The Hungarian State Treasury uses the Téba application (Budai 2016), which is an OPA-based IT framework for the automation of certain normative family support

procedures that can be applied for, but the shortcoming of the application is that its explanation (justification) function is currently underused. The National Tax and Customs Administration uses several AI-based programmes, of which Eskort is an expert system supporting ex officio VAT audits, which was introduced by the tax administration in 1999. Its strength is that it has a meaningful explanatory function, but its drawback is that it is only capable of drawing one-step conclusions (Fejes and Futó 2021).

The other fundamental issue in relation to public authority action is the discretionary power of the public administration: in this respect, it is useful to differentiate between cases that should be decided in favour of normative regulation and those that require discretion. The former refers to the issuance of so-called legally binding acts, where the public authority can only take one type of legal decision, given the facts and the rules, and this way of applying the law can be easily modelled and thus supported by artificial intelligence (Fejes and Futó 2021). Discretion essentially refers to an attitude of law enforcement where, due to the looser nature of the legal regime, the authority is left to its discretion to choose between several lawful decisions (e.g. determining the exact amount of the fine between a minimum and a maximum, choosing the enforcement method) (Maurer and Waldhoff 2020). By its nature, modelling this decision-making pattern requires a combination of machine learning and expert systems, as well as explicitly big data processing and data mining.

Related to this problem is the 'production' of substantive decisions using artificial intelligence, which is in its infancy in Hungarian law. The reasons for this may include the lack of a horizontal perspective and the inadequacy of the infrastructure in its present state, but some in the literature argue that the obligation of the public administration to give reasons for its decisions prevents automation (Fejes and Futó 2021). In addition to the fact that this approach is suitable for reassuring the legislator, the authors of this study dispute this idea for two reasons: firstly, as indicated in connection with the NAV Eskort, it is IT soluble to develop an explanatory function, and secondly, the forms applied intensively in the public administration can easily be used to digitise the justification, so there is no reason to turn away from planning further developments on this basis.

## *5.3 Challenges and Responses in the Relationship Between Public Administrations and Artificial Intelligence*

IT solutions (also) used in AI-based public administrations have shown varying degrees of effectiveness in different developed countries. Looking at examples from abroad, it can be highlighted that both machine learning and the use of expert systems are not alien at international level, with the Anglo-Saxon countries in particular leading the way in this field. Machine learning is the basis for the OPSI and BIT technologies, among others, which have been in existence since 2017, while

examples of successful use of expert systems can be found in the UK (ESI), Australia (IVAG), New Zealand (CSLC), and the US (e-HASP2).

In addition to the need to keep up with technological advances, it is also evident that the challenges of recent years (e.g. pandemics, war, restrictions on fundamental rights) have forced public administrations to proactively exploit these existing infrastructures. An example of this in the Hungarian documentary administration is the effort to reinforce the so-called customer call kiosks in the district offices with artificial intelligence, which, at least according to plans, will in the near future enable the online initiation and issuance of documents of a decision nature (e.g. identity card, proof of address, driving licence, passport) without the involvement of human beings.

The other aspiration that pervades the domestic related legislation is to use artificial intelligence as (one of) the means to shorten the administrative time. To illustrate this, one can cite the automatic decision-making institutionalised by the former Administrative Procedure Act and further developed by the Act CL of 2016 on the Code of General Administrative Procedure (hereinafter CGAP). The basic idea is that a decision is taken or communicated within 24 h of the initiation of the procedure, provided that the facts are clear and the necessary information is available to the authority. It should be mentioned that the sectoral legislation was originally modelled on ex officio procedures for certain traffic offences, but was later extended to procedures on request and to other sectors (e.g. certain family allowances, the issue of an inauthentic title deed). The scope of this chapter does not allow for a comprehensive evaluation of this legal instrument established by the CGAP, so we would just like to add that—according to the conceptual coordinate system of the GDPR regulation—this cannot be considered as a real automated decision, since under the current regulation, the human factor is required to intervene approvingly to reach the actual decision (Wachter et al. 2018). Similarly, this legal instrument cannot be considered as a pure application of artificial intelligence, even though the nature of the legislative act (i.e. the issuing of a legally binding act) would allow for the application of full automatism.

Finally, we would like to emphasise, in addition to the classical public authority activities, there is also the possibility of using AI in the context of public service organisation (once the guaranteed framework is in place). Examples of possible sectors include the organisation of public transport (which could be based on the operating mechanisms of Uber's existing platform) and the linking of so-called basic registers with administrative planning (e.g. birth registers could be used to draw automated conclusions from the number of children born in a municipality in order to plan the number of places in nurseries and kindergartens).

As a conclusion, the benefits of digitalisation of public administration (in this context, the use of artificial intelligence) in terms of increasing efficiency or reducing administrative costs are undisputed, but it should also be stressed that bringing the administrative location closer to the citizen has not resulted in the decentralisation of tasks and competences. On the contrary, the digitalisation of public administration has reinforced the principle of centralisation, so that the cautious rise of AI in Hungary can be identified with the process of centralisation.

# 6 'No Country for Municipalities': Platforms as a New Tool of Centralisation?

## *6.1 Fragmented Municipal System as a Framework of the Municipal Platforms*

The Hungarian public administration system was highly decentralised before the 2011/2013 reforms. After the democratic transition, a radically fragmented and very autonomous system of local government emerged (see Fig. 3).

The majority of local administrative tasks were the responsibilities of local governments, and local government officials also played an important role in state (central) administration activities through delegated central administration tasks as well. The issue of e-government in the Hungarian municipal system has become a significant element of Hungarian strategies and service delivery. In Hungary, the development of e-local government has been partly linked to 'bottom-up' initiatives, especially in the case of large municipalities, but has been characterised by top-bottom implementation. After the 2010 reforms, the former highly decentralised Hungarian public administration system—by transferring a large number of local government tasks to the responsibility of the central government and its agencies—was significantly centralised. Even the Hungarian municipal administration has been concentrated, because the village municipalities with less than 2000 inhabitants have

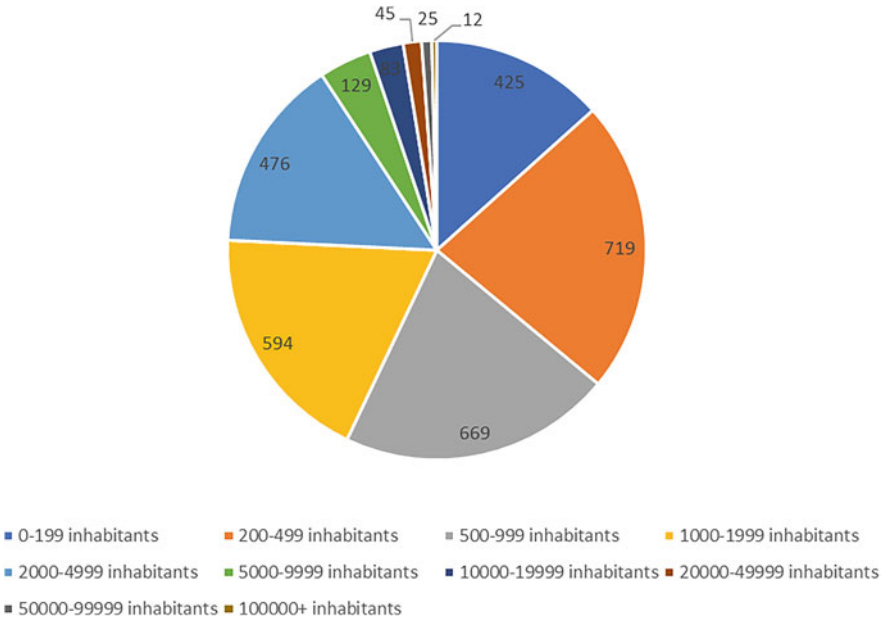


**Fig. 3** Number of Hungarian municipalities (including the district municipalities of Budapest Capital City) (January 2021) (Source: Hungarian Central Statistical office—www.ksh.hu)

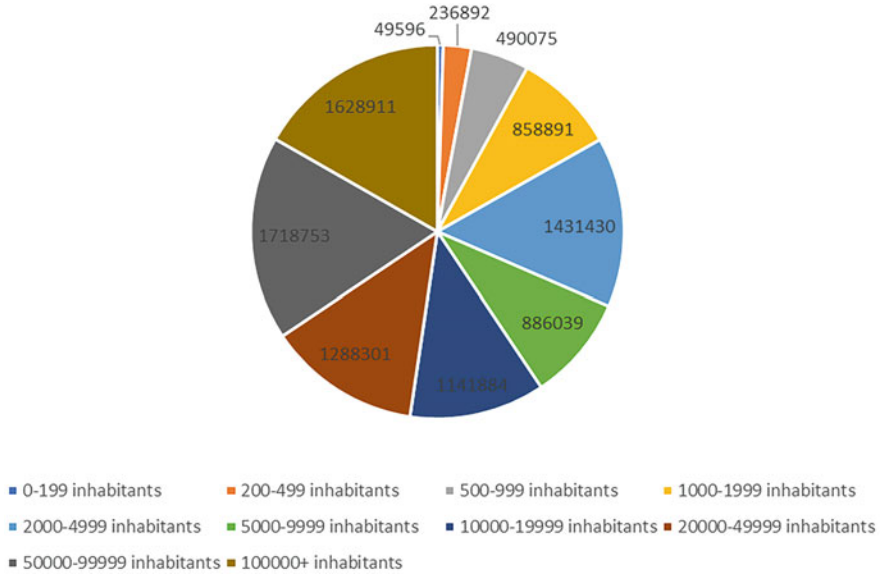


**Fig. 4** Population of Hungarian municipalities (including the district municipalities of Budapest Capital City) (January 2021) (Source: Hungarian Central Statistical office—www.ksh.hu)

**Table 1** Number of municipalities and municipal offices in Hungary (2019)

| Number of municipalities in Hungary | Number of independent municipal offices (offices of the mayors) | Number of joint municipal offices | Number of municipalities which participate in joint municipal offices |
|---|---|---|---|
| 3153 | 521 | 749 | 2632 |

Source: Hungarian Central Statistical office—www.ksh.hu

been forced to establish joint municipal offices (town municipalities and village municipalities with more than 2000 inhabitants can be the seats of the joint municipal offices; thus, they can participate in this cooperation) (Hoffman et al. 2016) (Fig. 4 and Table 1).

Municipalities have developed a new model of municipal e-government following new administrative and fiscal procedural rules, as municipalities are required to provide a fully electronic administrative platform in the field of local taxes. These changes have also had an impact on municipal e-services.

The new service and e-government system built after 2013/14 was based on the prominent role of the financial administration. The electronification of large public registers also took place after 2010. This included the Act I of 2010 on civil registry procedures (which entered into force on 1 January 2014) by which ultimately one of the most important basic public registers has been transformed to an electronic one. As we have indicated, platforms have also been created for the significant public service systems. In the area of basic health care, which has remained a municipal

responsibility, the above-mentioned EESZT, and in the field of basic social services, basic child welfare services and specialised municipal services for the elderly, the Social Sector Portal *(Szociális Ágazati Portál)*, can be interpreted as a specific platform-like solution. However, the fragmentation of the system persisted after the centralisation reforms: on the one hand, the different registers operated as separate platforms, partly due to data protection and partly due to the use of traditional administrative solutions. Thus, the interconnection between them was severely limited by this legal regulatory context and administrative traditions.

As it has been mentioned above, larger (urban) municipalities are one of the few municipalities worldwide where platforms have traditionally played a more important role (Lytras and Visvizi 2018). In Hungary, this trend has also prevailed: from the 1990s onwards, the larger municipalities in Hungary—typically the districts of Budapest and the towns with county rights—began to develop their own platforms and electronic administrative systems to increase administrative efficiency. As with the development of public administration, this was first seen in financial administration. A kind of zero step in the development of local government platforms was the emergence of local government electronic accounting systems. Initially, there was no single platform, and the larger municipalities began to develop their own accounting systems, based on systems developed by market players and in line with public finance rules. The 'first generation' of municipal platforms was the development of these accounting systems to automate local taxation. In fact, these larger municipalities developed specific systems for the management of local government revenues, which were classified as local taxation platforms. These developments were mostly carried out by the larger municipalities themselves, with the involvement of a partner in the implementation of the accounting system, and initially typically used their own authentication systems, with little or no interoperability. Later on, in particular with the spread of electronic tax administration solutions and the widespread use of centralised client-gate identification, municipal systems were also made available with a unified and centralised client-gate identification system. However, significant differences remained between local administration platforms in view of the different developments. The mandatory introduction of the application service provider (ASP) system, operated by the Hungarian State Treasury, marked a new turning point in the evolution of local government platforms for public administration. This system, which allows the financial management of municipalities to be monitored in real time, also brought about a reform of the previous administrative and accounting systems. The ASP, which can be understood as a platform, will be progressively implemented by all local authorities from 1 July 2016. The system provides a single accounting and related administrative interface. In view of the roll-out of the ASP system, the former separate platforms of the municipalities were adapted to the centralised systems, with some of the previous improvements becoming unusable and those that could be integrated into the centralised systems being maintained (Hoffman and Karpiuk 2022).

In addition to the municipal tasks as public authorities, Hungarian municipalities have introduced smart city solutions, especially in the field of transport services. Some of them have developed their own platforms, in particular for the use of local

public transport (e.g. Budapest Transport Centre's—BKK—Courier system on which the 'Budapest GO' platform is based) and for monitoring and paying for parking in public spaces. These solutions were partly based on in-house developments, but centralisation has also been introduced in this area. On the one hand, in the case of public parking services, the development of the national mobile payment system was a particular point of convergence, as the systems had to be interconnected with it. On the other hand, a more subtle, soft form of centralisation of smart city solutions has been the creation of national data centres and the provision of professional solutions (e.g. Lechner Knowledge Centre). Unlike international trends (Lytras and Visvizi 2018), where smart city solutions are increasingly being applied in the field of public human public services, the Hungarian smart city solutions are just partially applied for health, social, and education services. The reason of this difference is that these services have been significantly nationalised and centralised, thus limiting the role of municipalities. Another reason is that national regimes which can communicate with municipal systems and provide meaningful services to the beneficiaries only started to be extensively developed by the end of the 2010s. A third reason could be that there has not been a significant demand for smart solutions from the users of these services, because of the lack of the digital competences of the Hungarian population. From the 2010s onwards, these processes began to extend beyond the larger (urban) municipalities—and in Hungarian terms, beyond the municipalities with county rights: public administration platforms and some smart solutions, typically for transport services, were also adopted by some medium-sized municipalities (larger districts or municipalities with a population of more than 20,000–25,000 inhabitants). The presence of digital solutions and platforms among municipalities is particularly low. Thus, even in a national context, platforms are perceived as a municipal issue (Henk 2018).

**Closing Remarks**

Even public administrations and the provision of public services have been impacted by the evolvement of platforms. Platforms have been widely used by the public service systems as well. AI is applied for the management of platforms. The platformisation of the public service provision enhanced the accountability of the public service provision, and therefore, even the trust in these systems has been increased. But the platforms as ecosystems are mainly centrally managed, and therefore new forms of administration have been evolved during the last decade: platforms became the tools of 'silent' centralisation as well.

## *6.2 Platforms and Municipal Governance: Towards a New Type of Centralisation?*

Centralisation and decentralisation have taken different forms, but two main trends have emerged in the various reforms affecting municipal administration. The first form has been typical of the Western and Northern European states, where various

reforms have been partly top-down and aimed primarily at modernising systems. In the field of local public services, these states were more reliant on local government systems; the various reforms were primarily aimed at transforming the economy of scale of municipalities. Although these reforms also sought to create larger local and regional units, they were carried out within the local government system. Therefore, they could be interpreted mainly as concentration and not centralisation of local governance (Pálné Kovács 2019). The trends towards integration and concentration were further reinforced by the changing municipal framework at the turn of the millennium, in particular the increasing urbanisation trends. The emerging housing crisis in large cities, with affordable housing being pushed to the periphery of large cities, and the resulting intensification of suburbanisation, posed challenges that could not be adequately addressed by traditional municipal spatial structures, as service units extended well beyond the administrative boundaries of municipalities. In order to manage these units, a variety of solutions have been adopted: either merged units or specific forms of compulsory inter-municipal cooperation. Local government concentration, for example merging of municipal units and the development of inter-municipal associations, has posed additional challenges, particularly in the field of public human services. Municipal human service systems must therefore provide services to a relatively uniform standard. This has created a particular tension in these systems. Given the wide range of local government functions, both in education-cultural and in welfare public services, a specific latent 'stealth' centralisation has emerged, whereby the freedom of local communities to organise services has been eroded through the regulation of various service standards, typically not by law but by ordinance and in many cases by soft law. Alongside 'stealth' centralisation, a trend has emerged since the 2000s in some decentralisation solutions in Northern and Western European countries, which the literature refers to as 'cynical decentralisation'. In this case, the primary aim of reform was not to strengthen welfare functions, but was in fact to shift responsibility, as additional resources were not provided for increasing tasks, or were provided inadequately (Pálné 2019).

The emergence of municipal platforms can be interpreted as a part of this latent centralisation process. They can be seen as a specific twenty-first century form of 'stealth' centralisation. With the widespread use of ICT and the emergence of the information society, information and data related to public services are becoming increasingly important. In the majority of modern states, these data systems and platforms are generally organised at central level (Tomlinson 2019). Since without this data, the new types of public service organisation solutions for municipalities cannot be implemented or can only be implemented to a limited extent. The ownership of data and access to them have also led to a 'soft' centralisation in these states, which is only indirectly perceived at first sight, but it is a very real one. As we have mentioned above, this soft centralisation—albeit on a smaller scale, because of the extensive direct centralisation of the 2010s—has also been present in the Hungarian local government system, especially in larger urban municipalities. Indeed, smart city solutions inevitably entail data requirements, which central systems can provide. However, access to data also implies adaptation to central

platforms, and local systems must be interoperable with central systems. This necessarily implies adaptation to the interface and logic of the central systems. This allows the central government and its agencies to have a significant influence on the local service provision through the design of its own data systems, without seeming to interfere. A unified data management and processing system also reinforces the centralisation of an administration; it makes the system more centralised, even if this is not, or only barely, noticeable at first sight.

## 7 Concluding Remarks

Even public administrations and the provision of public services have been impacted by the evolvement of platforms. Platforms have been widely used by the public service systems as well. AI is applied for the management of platforms. The platformisation of the public service provision enhanced the accountability of the public service provision, and therefore, even the trust in these systems has been increased. The application of AI has been started and strengthened by the establishment of platforms, but the use of it can be considered as a limited one. Platforms as ecosystems are mainly centrally managed, and therefore, new forms of administration have been evolved during the last decade: platforms became the tools of 'silent' centralisation as well.

**Acknowledgements** This research was supported by the project '*Resilience of the legal system in the post-Covid society: Risks and opportunities*' (principal investigator: Fruzsina Gárdos-Orosz), by the project NKFIH OTKA FK 138965 (principal investigator Kitti Mezei), and by the Cost Action CA20123 *Intergovernmental Coordination from Local to European Governance*.

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