New challenges of local and regional public service provision: platforms and their cybersecurity issues

István Hoffman
Eötvös Loránd University (Budapest), Faculty of Law, Hungary
ORCID: https://orcid.org/0000-0002-6394-1516
E-mail: hoffman.istvan@ajk.elte.hu

Abstract

Public service provision and administration have been transformed by the digitalization and application of information and communication technologies (ICT). My paper will focus mainly on the impact of these changes on the service provision and on the cybersecurity issues. The new, general systems offer a more efficient service provision but it has several, non-primarily perceived impacts. First of all, the ‘platformisation’ of the local services could be interpreted as a new form of centralization. These platforms are either managed by the central government or the data for the local and regional managed platforms are provided by the central government. The approach of the data management and the data provision has a standardisation, and thus a centralisation effect. The centrally managed platforms and the interface between local and central system has
even cybersecurity issues: these interfaces, and especially the local systems could be vulnerable to cyberattacks.

**Keywords:** centralization, decentralization, digitalization, public service provision, cybersecurity

**Introduction**

In the developed democratic states, the administration and management of local public affairs is inconceivable without local self-governance. Local and regional governments and the services provided by them have a significant impact on the structure of the public administration of a given country. It should be emphasised that the development of information and communication technologies (ICT) resulted a significant change in administrative activities, which transformation impacted the centralization of administrative tasks.\(^1\) This change is significant, because the main elements of the alteration of the system are quite latent, but these modifications can be interpreted as a ‘silent revolution’ of the local and regional public service provision.

As it has been mentioned later, the platforms as tools of e-governance can be observed in most of the countries, even the administrative systems of the developing countries use the platforms as a tool for performing and managing public administration.\(^2\) However, the evolvement of e-governance and the even extensive application of platforms could be considered as a global phenomenon,\(^3\) but there are differences between the countries and between their approaches. In my paper, I would like to focus on the general elements of this platformisation, but my analysis will partially focus on the approach and system of the Visegrád countries, especially Hungary. These countries have an interesting situation. First of all, they are Member States of the European Union, and therefore they should follow the EU regulation on the protection of critical infrastructure. Secondly, they are

---

developing their e-governance systems, and they try to use the e-governance as a tool for economic development, as well. Last, but not least, especially Hungary has been introduced obligatory application of e-services and administrative platforms for several legal subjects in the last two decades, therefore, the evolvement of these systems is strongly supported by the legislation and by central government policies.⁴

**Methods**

My paper is based on a jurisprudential analysis. First of all, I would like to analyse the models and paradigms of the municipal systems, because the municipal e-administration is part of the municipal policies. These policies are strongly influenced by the given municipal systems. The examination will focus on the public service provision. The platforms as centralised and standardised systems are more effective than the fragmented e-systems, but based on this concentration, several vulnerability threats could be observed. Therefore, the cybersecurity issues of the local platforms will be analysed.

However, the major method of the analysis will be jurisprudential. Similarly, the policies on e-local government will be reviewed shortly.

**Platforms and public administration**

It is emphasised by the literature that that 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.⁵ Platforms can also be analysed as a specific network, typically connected to the Internet, and as a specific ecosystem. Platforms are interpreted by the market theory as both a network interface connecting two groups and a system that creates value through a common architecture. The interpretation of technology management approach is based on the network nature of the platforms. It is emphasised by this approach that they are standardised ecosystems which are highly interconnected and systemised. Strategic

---


management looks at the corporate operation of the platform as a network and the system of processes that create value. On the one hand, the best-known platforms are systems linked to the provision of services, such as various data analytics platforms. However, the role of platforms is much broader than that: in fact, modern corporate governance relies extensively on these solutions, which are standardised and easily adaptable to the company's own processes and to other companies' systems. In this context, I would like to highlight the different enterprise performance management systems, for example the SAP system as an example of a widely used solution. It should be emphasised that the above-mentioned platform definitions are also applicable to the analysis of public administration activities.⁶

Because of the widespread application of platforms, they have also become strongly embedded in the regulatory issues of public administration. Public attention has focused primarily on the regulation of the above-mentioned platforms which are based on the sharing economy. However, the infocommunications revolution has also had a significant impact on the activities of public administrations, and the emergence of e-government has been influenced by platforms.⁷

It is undeniable that the digital revolution has now reached public administrations. E-government brings many benefits. For example, customers are not bound by office hours, they do not have to meet officials, they have easier access to information and a range of tools to help them make decisions. 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. 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.⁸ Therefore, eGovernment is a tool for economic development. Simplified procedures and

---

⁸ Kim et al., op. cit. pp. 362-364.
automation of decision-making can speed up procedures, which in turn can lead to a reduction in administrative costs. Therefore, the literature considers investment in e-government as an investment in economic development. Taking into account the impact and results of platforms in economic life, some public administrations have also started to adopt platform-like solutions relatively early, at the turn of the millennium. In the Hungarian public administration, systems have also emerged that ultimately fit different descriptions of platforms: thus, the general government electronic administration system, the Customer Gateway, and, closely related to it, the Central Identification Agent can be clearly described as such a specific network and ecosystem.⁹

If we look at the development of the European systems, we can point out that platform-like solutions were the first and most widespread in the field of financial administration, mainly in the area of public revenue management and payment.¹⁰ Later, several such administrative sector solutions were developed, including those related to public revenues, for example in the field of social security and construction administration. Various platforms have also been developed in other areas of traditional public administration. Platform-like solutions have also appeared in the area of property registration, such as the electronic land registry system and the vehicle locator. The range of these platforms for registration has been continuously expanding in recent years. These platforms were essentially related to administrative-public authority functions, i.e. traditional public authority administrative activities, including public authority enforcement and, to some extent, public authority supervisory activities.¹¹

Public administrations also provide a wide range of public services. Given that economic platforms have been particularly successful in the field of services, it is logical that these solutions have also been introduced in the field of public services in the various public administrations. These platforms for service information and administration have also appeared in the public services organised by the Hungarian public administration. Thus,

---

⁹ Hoffman et al., op. cit. pp. 184-188.
in the field of social security services and, in particular, health services, such solutions have already been developed at 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. The role of these health service platforms has been increased during the COVID-19 pandemic, because it could offer the possibility of telemedicine and thus to decrease the personal interactions and the risk of infections.\textsuperscript{12} Similarly, the COVID-19 pandemic has brought to the fore platforms in the field of education. The first platforms in higher education have been developed during the Millennia. The higher education has been internationalised even in the field of platforms, major systems (for example Coospace, Canvas, Moodle and kahoot!) have been developed and they are widely used by the different higher education systems. The individual university systems were based on these engines. During the 2010s, based on the classroom and on-line conference management systems, the universities have built systems which are integrated with these conference and classroom engines (for example Zoom, Webex and the MS Teams). These systems have been widely used by universities during the different emergency situations of the polycrisis of the 2020s.\textsuperscript{13}

\textbf{Platforms as a tool of ‘stealth centralisation’?}

The latent, ‘stealth’ centralisation has also taken on 21\textsuperscript{st} century forms. With the informatics 'revolution', the widespread application of ICT and the emergence of the information society, information and data related to public services are becoming increasingly important. In the majority of the developed countries, these data systems and platforms are generally organised by the central government. Since without this data, the new types of public service organisation solutions for local authorities, which are extensively based on digital solutions and which in many cases are linked to the smart city concept, cannot be implemented or can only be implemented to a limited extent, the ownership of and access to data has also led to a kind of centralisation in these countries, which is only indirectly perceived at first sight. This centralisation is similar to the above-


mentioned transformation of the business sector: the introduction of corporate digital ecosystems – for example, one of the most known is the System Applications and Products in Data Processing (hereinafter: SAP), which is the leading software in Enterprise Resource Planning market\textsuperscript{14}– resulted the centralisation of the company management and the standardisation of the different corporate procedures and activities\textsuperscript{15}. The corporate ecosystem of the multinational companies has been more centralised after the introduction of these platforms because the former differences in procedures and management have been disappeared.\textsuperscript{16} The impact of the ICT on public service is similar to the digital transformation of the business sector. However, these alterations are quite visible, the digital transformation is the ‘stealthy’ one, but the evolvement of the public service provision platforms could be interpreted as a very real and significant centralisation. This latent centralisation is also evident in Australia.\textsuperscript{17}

**Cybersecurity and platforms**

Cybersecurity became an important issue of the municipal administration after the Millennials, especially after 2010, when the eGovernment and the municipal e-services begun to evolve rapidly.\textsuperscript{18}

After the challenges of the new era, especially to ensure a better defence of the administrative cyberspace, a new regulatory approach has been evolved after 2010. These regulatory issues were accelerated by significant cyberattacks and the experiences of these attacks and the defense against them. Mainly centrally supervised systems have been regulated.


\textsuperscript{15} A. Hein et al., *Digital platform ecosystems*, Electronic Markets: 30, 2020, pp. 88-90;


It should be emphasised that the major challenges of the municipal cybersecurity are linked to nationally defined requirements. Especially in those countries which have fragmented municipal systems, and the number of the local offices are quite high, the local offices are quite small. These offices have often lack of resources and lack of human capacities, especially in the field of cybersecurity.

The majority of the civil servants of the municipal offices have limited training in the field of cybersecurity, even in larger, urban municipalities.\(^\text{19}\) It should be emphasised, that not only the lack of resources for a more developed cybersecurity defence hardware and software is a major element of the vulnerability of the municipal systems.\(^\text{20}\) Another threat of these system is the human factor.\(^\text{21}\) Those municipal officers who have not been trained on avoiding cyberattacks based on the inexperience of the platform users could be a significant threat on these centralised platforms, as well. It is emphasised by the literature, that one of the most significant vulnerability factors of these systems are the human users, because their inexperience could result in large scale cyberattacks, as well. Similarly, the increasing number of the users and interfaces result an increasing threat on these systems. Therefore, those general systems which are linked to the municipal systems and have a large number of users have a more significant risk of vulnerability.\(^\text{22}\)

Because of the existence of delegated state tasks, these municipalities have links to the central systems, especially to the registrations of the population and their addresses. Therefore, these small offices can be an Achilles heel of the fragmented systems, because they are more vulnerable than the national(ised) systems.\(^\text{23}\) Similarly, the university systems could be considered such a vulnerability because of the great range of interfaces and users.\(^\text{24}\) Thus, the central governments have significant tasks in


\(^{20}\) Idem, pp. 621-623.


strengthening the municipal cybersecurity. And as it can be seen, it is not enough to issue legislative and regulatory acts, but even the local trainings should be supported by the central government. Because of these centralised platforms, the municipal cybersecurity is not only a local issue; it has significant impact on the national systems, as well.25

Conclusions
The digitalisation and the e-administration are important issues of the public administration reforms of the last decades. The challenges of the new, digital ages resulted the transformation of the traditional administration. As we reviewed, the regulation on e-Government and on the digitalisation of the public administration transformed significantly. The regulation was focused on the development a horizontally integrated e-administration. The municipal e-administration systems have been built by the municipalities (especially by the larger municipalities), but their operation could be developed. The regulation and the supervision activities of e-Government are detailed regulated and have evolved quickly during the last years, and its focus have been partly transformed. Not only the individual decisions, but even the provision of public services have become digitalised. The new, centrally operated platforms can be even interpreted as a new, ‘soft’ tool of the centralisation.

Literature


