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**IT MODERNISATION OPPORTUNITIES FOR LOCAL
GOVERNMENTS IN HUNGARY**

**The impact of digital government developments on the effectiveness of the local
government subsystem**

(PhD thesis' main statements)

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1. Background to the research

1.1. Reasons for the choice of topic

Municipal administration is one of the most important areas of public administration, especially given that it is in local government offices that a significant proportion of citizens first (and in many cases almost exclusively) encounter public administration. There is a municipal self-government in every municipality in Hungary, as well as a municipal office (or at least a municipal branch office or customer service).¹

In the 2010s we experienced a particular paradigm shift in the local government subsystem, which was organized along the lines of the principles established during the regime change. The accumulation of local government debts has highlighted the unsustainability of the subsystem with such elementary force that it has prompted the central government to take action.

The Fundamental Law of Hungary (25 April 2011) and Act CLXXXIX of 2011 on Local Governments in Hungary clearly form the basis for the significant organizational and operational reforms of the 2010s. In addition to the new Fundamental Law of Hungary and the Local Government Act, other newly promulgated laws have also had a major impact on the life of local governments. The Act XXXII of 1992 on the Legal Status of Civil Officers, which replaced Act CXCIX of 2011 on the Legal Status of Civil Officers, and its implementing regulations have brought fundamental changes for staff of the local public administration bodies. In the field of financial management, Act CXIV of 2011 on the Economic Stability of Hungary, the new Public Finance Act (Act CXV of 2011 on Public Finance) and its connecting decree (Government Decree No. 368/2011 on the implementation of the Public Finance Act), Act XCIII of 2012 on the formation of districts and the amendment of certain related acts brought fundamental changes.

In addition to the above changes, a related but different and less obvious reform has been implemented, *which aims to improve ICT systems in local government and increase the pace of digitalization.*

Since the 2010s, the state has prioritized the IT and ICT development of municipalities (partly to increase efficiency and avoid the accumulation of future debts, partly to comply with international - mainly EU - programmes and action plans), which had previously been

¹ See: the Act CLXXXIX of 2011 on Local Governments in Hungary (Act CLXXXIX of 2011) § 85 (9)

left to their own devices and condemned to isolated developments in the name of autonomy and independence, and has come up with complex development programmes.. Undoubtedly the most important result of these development programmes has been the creation of a unified ASP system for municipalities, to which all municipalities in Hungary have joined by 2019. The main rationale behind these developments, as with the organizational and operational reform, was essentially to increase efficiency.

I consider the subject of the research to be topical primarily because, although the relationship between efficiency and digital government has been a dominant issue in legal, administrative, economic and technical research at the international level in recent decades, studies on the subject have relatively rarely examined the municipal level of public administration. The level where (as I have pointed out) citizens, as clients, first encounter public administration.

1.2. Aim and hypotheses of the research

The main objective of the research underlying this thesis was to examine the impact of digital developments in Hungary on the efficiency of public administration in the local government subsystem.

In Hungary, the model of municipal self-government developed during the regime change was fundamentally changed again by the reforms of the 2010s. One of the main reasons for the change of model was precisely to improve the efficiency of the subsystem. Assuming the success of the reform, *my first hypothesis (H1) was defined as follows: local governments in Hungary have become more efficient since the reforms of the 2010s.*

After the reform in Hungary, mostly in the mid-2010s, a number of measures were implemented to improve the digitization situation of local governments. It can also be seen that Hungary has followed international trends and expectations in the field of digital government, and the government has been particularly careful to improve the country's performance indicators year by year in some comparative analyses. From these digital government developments, *my second hypothesis (H2) follows: the introduction and nationwide expansion of the ASP system in local government has led to a large improvement in efficiency in the subsystem, similar to the local government reform.*

2. Methodological notes

The scientific literature on digital government is growing exponentially. The study of the use of new and emerging technologies in public administration has been at the centre of interest in public administration and legal research for decades. The advent of personal computers and the Internet, the emergence of cloud technologies, the use of platforms and, most recently, the spread of artificial intelligence have all raised questions that have challenged legislators and practitioners alike. Effectiveness is a similarly complex issue, which is open to many different interpretations. Given the volume and diversity of definitions, I have had to undertake considerable conceptual clarification in the *analysis and processing of scientific literature* on both digitization and digital government and effectiveness.

Although I have tried to approach the questions formulated in the thesis primarily from two fields, namely (public) law and public administration, I could not refrain from presenting the relevant literature from other fields of study. Accordingly, I have analyzed and used a number of studies in economics, information technology and statistics.

In addition to the studies and publications on the main topic of the thesis, the range of sources used also included the programmes, strategies and specific reports and rankings on digital government of certain international organizations (in particular the European Union, the United Nations and the Organization for Economic Cooperation and Development). I have also critically analyzed national digital government strategies and programmes.

In parallel using existing academic literature and other sources, I also conducted *primary research*, which involved targeted data collection on the practical implementation of e-government. In the course of the research,² a sample of 3178 municipalities, representing almost 5% of the total number of municipalities, provided data on the use of new digital channels by the population and their experiences of using them. Given the volume of respondents, the sample cannot be considered statistically relevant, but given its composition (responses were received from all types of municipalities and from municipal offices in all counties), it may be able to confirm, with some reservations, my other analyses based on statistical data.

² For a detailed description of the research, see Chapter VII, subchapter 7.3 of the doctoral thesis.

The main findings of the thesis are presented in chapter seven. This chapter analyses the extent to which recent digital developments in the local government sector have influenced, or may have influenced, the operational efficiency of the subsystem. This required the *development of indicators and the identification of relevant 'inputs' and 'outputs' of digital government* against which the efficiency generated by digital government developments could be measured. At this point, it should be stressed that the choice of these indicators may seem arbitrary in the absence of a uniform, generally accepted methodology, but I have nevertheless tried to use all quantifiable data that could be linked to some understanding of effectiveness.

3. Structure and content of the doctoral thesis

3.1. The first structural unit

In the first section of my thesis, I describe the aim and methodology of the research as outlined above. In this section, I will also present the rationale (logic) for the structure of the thesis and formulate the research hypotheses.

3.2. The second structural unit

In Chapter II, I clarified the conceptual framework of digitization and digital government in order to prepare the ground for further studies. I have taken the theory of development cycles as a starting point for my understanding of digitalization. *I have identified the digital revolution with the phenomenon Industry 4.0.* I found that both public administrations and their customers saw potential benefits in digital solutions, and ultimately this dual driving force led to the emergence of digital government.

Digital government is a phenomenon that is difficult to define (indeed, there is still no consensus definition). In describing the conceptual framework of the phenomenon, I have pointed out that, despite the diversity of definitions, *its essential element is the use of new technologies.* These technologies have created new types of communication opportunities for public administrations as a whole. I have also argued that one of the most important consequences of digital government - *and one of its results* (and, as we shall see later, in some interpretations, an important measure of its effectiveness) - *is the emergence and*

widespread use of digital government. I have narrowed the scope of digital government in this doctoral thesis to the interactions between public administrations and their customers. I have identified the organization of the public administration and its customers as its basic subjects.

Finally, *I described the measurement options for digital government*, distinguishing between what the literature calls "maturity" and "readiness" frameworks. As an important difference, I identified that maturity models focus on the interactions between the public administration and the customer, i.e. they primarily analyze the current situation and functioning and classify the level digital government maturity of each state accordingly.

3.3. The third structural unit

In this chapter, I examined the issue of public administration effectiveness by analyzing the literature on public administration, economics and administrative law, primarily in the light of the performance measurement frameworks of leading international organizations and the programmes, strategies and reports on public administration performance measurement issued by Hungary since 2010. The analysis of these documents did not reveal a single, universally accepted concept of effectiveness.

Among the domestic definitions, the most prominent, with its 'simplicity', was the Strategy for the Development of Public Administration and Public Services, which captured the classical, economic interpretation of the phenomenon. In the case of the 'Jó Állam' (Good State) reports, I found the selection of indicators to be arbitrary in many cases, and although I understood the concept behind the selection criteria of the indicators to be well thought out, this did not mean that their value could be used to clearly determine the effectiveness of public administration.³

In the light of the above doubts, I thought it important to distinguish between the broader interpretations of government and the narrower interpretations of administrative effectiveness.

³ CSUHAI Sándor – FEKETE Leticia –KÁDÁR Krisztián: Hatékony közigazgatás. In: Államtudomány Műhelytanulmányok 2016. évi 28. szám (2016). p.20. Online: https://demo.repozitorium.uni-nke.hu/xmlui/bitstream/handle/123456789/7260/2016_-evi-28_-szam-hatekony-kozigazgatas.original.pdf?sequence=1 (15-04-2024)

If we study administrative effectiveness as part of government effectiveness (performance), we have to recognize that public administration as a specific organizational system does not necessarily appear as a 'supplier' of public services, but rather as an infrastructure. It follows that public administrations must enable the actors that actually deliver public services to perform these functions. In this approach, administrative outputs can ultimately be understood as inputs to public policy activities.⁴

If we focus on public administration in the narrow sense of the term as a specific organizational system with a specific set of staff and operating on the basis of a specific mechanism, effectiveness means the transformation of human, technical and financial resources as inputs into outputs through specific administrative procedures.⁵

This interpretation is most relevant in the field of public administration, i.e. in the operational dimension, which is relatively easy to calculate and model and whose analysis is itself justifiable, but which, precisely because it omits results and impact as important factors, does not necessarily provide sufficient information on the quality of public administration and of administrative decisions themselves.

In the case of staff effectiveness, the input factors can be the number of employees and their skills and abilities, while the output can be interpreted in terms of staff performance (employee performance), i.e. in essence, we can say that the performance (output) achieved by a unit number of employees with specific skills and abilities (input factor) is the basis for inferring the effectiveness of the staff.

In addition to operational and personnel effectiveness, I have also examined the effectiveness of the organization as a third specific dimension of public administration.

As can be seen from the definitions of organizational effectiveness, the phenomenon is particularly difficult to measure and can only be successfully conducted using complex systems of indicators.

In view of the doubts described in this chapter, I have subsequently examined the impact of digital government on effectiveness in terms of both a broader and a narrower understanding of administrative effectiveness.

⁴ CSERNY Ákos et al.: Hatékony közigazgatás. In: KAISER Tamás – KIS Norbert: *A jó állam méretősége*. NKE Szolgáltató Kft. (2014) pp. 233.234. ISBN 978-615-5305-78-8 pp. 233-236. pp. 233-234. Online: <https://joallammutatok.uni-nke.hu/document/dialogcampus-uni-nke-hu/a-jo-allam-merhetosege-2.original.pdf#page=233> (letöltve: 2024.04.15.)

⁵ See *ibid.*

3.4. The fourth structural unit

While Chapters II-III were devoted to clarifying the conceptual framework, the primary objective of Chapter IV was to examine the relationship between digital government and administrative effectiveness. In this chapter, I reviewed the relationship between digital government and effectiveness, and, in order to be complete, I also examined the strategy documents of the most important international organizations, the Hungarian strategies, the relevant legislation and the scientific literature. In the final, summarizing subsection of the chapter, I compared the elements contained in these documents, attempting to synthesize their basic content.

Although the sources examined identify different overarching goals as the optimal state to be achieved (in particular: good governance, sustainability, competitiveness, good state), digitization and digital government in particular are almost always seen as a means to achieve effectiveness. Effectiveness is mostly captured in the strategies, action plans and legislation examined in terms of reduced costs, speed, accessibility and transparency. It is therefore along these four components that the impact of digital government on effectiveness in a particular type of organization, including local authorities, should be examined.

3.5. The fifth structural unit

The basic aim of this chapter of my doctoral thesis was to prepare the ground for an examination of the relationship between effectiveness and digital government as an end and a means in the context of Hungarian municipalities. In order to do so, I analyzed the characteristics of Hungarian municipalities, pointing out the issues that have had the most impact on effectiveness after the regime change. The analysis also included the reforms of the 2010s, which, based on the presented context (but at the cost of some reduction of autonomy), seemed to be able to increase effectiveness and mitigate the disadvantages stemming from the specific settlement structure and historical traditions.

3.6. The sixth structural unit

In order to properly assess digital government solutions in Hungary, I needed to grasp the relationship between the local level of public administration and digital government, as well as the relevant indicators.

In the course of the analysis, I found that, with few exceptions, the major international comparative frameworks do not, or only tangentially, address the examination of the municipal level. Reports that do focus on municipalities are incomplete, mostly focusing on large cities and the online presence. In this context, it is a very difficult task to objectively determine the effectiveness of a state's digital government tools for the local government subsystem.

In view of the above, I had to explore the history of the digital development of local governments in Hungary and the results of relevant developments in the absence of a "line manager". In the end, I assessed the developments of the 2010s in a very positive light, given that whereas in the first half of the 2000s the sector had to cope with a number of challenges that now seem banal (a typical and striking example is that in 2003 only a third of local governments had their own websites), by the beginning of the present decade, local governments are supported by modern cloud-based software and up-to-date IT infrastructure.⁶

While initially digitization was not facilitated by legislation,⁷ the combined application of Act CCXXII of 2015 on the General Rules of Electronic Administration and Trust Services and Act CL of 2016 on the General Administrative Procedure nowadays precludes local governments from being exempted from the obligation to receive applications electronically. The most significant turnaround in terms of developments was the creation of the municipal ASP system and its nationwide roll-out in 2019, which was also hailed as a success story by intergovernmental organizations.⁸

3.7. The seventh structural unit

After a general mapping of the relationship between digital government and effectiveness, I analyzed the specificities of Hungarian municipalities and the digitalization situation of municipalities in Chapters V and VI. Based on this knowledge, in Chapter VII I identified the effects of digital government on effectiveness, focusing specifically on Hungarian municipalities.

⁶ INFORMATIKAI ÉS HÍRKÖZLÉSI MINISZTERIUM: Magyar Információs Társadalom Stratégia. Online: https://www.artefaktum.hu/oktatashoz/mits_2003.pdf (2003) p. 15. (15-04-2024)

⁷ The legislation governing the administrative procedure has typically allowed for the negation of the electronic way of interactions

⁸ CAPGEMINI: The eGovernment Benchmark 2020 Background Report (2020). Online: https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=69460 p.89. (14-04-2024)

The current organization and functioning of local governments in Hungary is determined by the regulatory framework that has evolved during the municipal government reform, and their level of digital development is mainly determined by the opportunities provided by the municipal ASP system.

As my doctoral thesis was mainly concerned with the effects of digital government on effectiveness in the local government subsystem, in this chapter I primarily assessed the effects of digital government its impact on operational effectiveness, organizational effectiveness and staff effectiveness.

In each of the three dimensions, I looked for indicators that could be used to express positive or negative changes in effectiveness in a dimension. I have complemented this by presenting the results of my primary research, briefly described above.

The results of these studies are presented in a separate chapter (Chapter VIII.) in this thesis, which is presented below.

4. Research findings and further research opportunities

4.1. Testing the preliminary hypotheses

My first hypothesis (H1) is that local governments in Hungary have become more efficient since the reforms of the 2010s. This hypothesis has been confirmed in some dimensions of effectiveness: following the creation of joint municipal offices, the restructuring of the task structure and the new financing system have reduced the staffing of local government, which has allowed it to operate more cost-effectively. However, it is important to note that the main negative impact of this has been the exceptionally high level of autonomy. According to some studies, Hungary was the only European country to experience a decline in autonomy between 1990 and 2014.⁹

In the last part of my thesis, I examined the impact of digitalization and digital government on the subsystem of local governments. I found that after the regime change, the level of digital development of local governments lagged far behind that of the state administration,

⁹ LADNER, Andreas – KEUFFER, Nicolas – BALDERSHEIM, Harald: Measuring Local Autonomy in 39 Countries (1990–2014), *Regional & Federal Studies*, 26:3 (2016) pp.321-357, DOI: 10.1080/13597566.2016.1214911

both in terms of infrastructure and software used. *My second hypothesis (H2) is that the introduction of the ASP system in local government has led to a large improvement in effectiveness in the subsystem, similar to the reform of local government*, due to the previously identified link between effectiveness and digital government. To demonstrate this, I attempted to analyze both staffing, organizational and operational effectiveness.

For the question of staff effectiveness, I took as a starting point the professional qualities of staff¹⁰ as a possible measure of efficiency and the changes in the size of the civil service staff in municipalities. On the first issue, I concluded that, on the one hand, there are no records of the actual qualifications of individual employees and, on the other hand, the relevant government decree has relaxed the qualification requirements for several positions. It follows that the officers employed in each municipal office do not necessarily possess, even at the time of their appointment, the knowledge which, under the legislation in force, the formerly appointed staff must have possessed. The number of officers employed in local government offices is also not publicly available, so all I could find was that the number of civil servants employed in public administration, defense and compulsory social security has been steadily decreasing since 2016, but it is not clear from the data examined to what extent this is due to changes in the number of staff in the local government subsystem and to what extent in other subsystems.

On the question of organizational effectiveness, I found the changes in the number of joint municipal offices to be the most appropriate indicator. Starting from the assumption that fewer offices are likely to lead to cost savings even if the local government office is obliged to provide customer service in all municipalities concerned, I examined whether the number of offices has increased or decreased in recent years. I had expected the number of joint municipal offices to increase and the number of independent mayor's offices to decrease, but the opposite trend has emerged.

Finally, I looked at operational effectiveness, mainly based on the penetration and volume of digital administration. This was the only dimension where there was a clear improvement in effectiveness, given the high level of willingness to use digital government services both during and after the pandemic. In addition to this essentially positive trend, I should also mention that the preference among digital government options is not for the solutions offered by the sector-specific municipal ASP, but for the much less formalized e-Paper.

¹⁰ see: Jó Állam Index

Overall, I could not clearly support this second hypothesis, partly due to the unavailability of the relevant data and partly due to the circumstances discussed in more detail under organizational efficiency.

4.2. Further findings and research opportunities

In addition to the findings that led to the confirmation or refutation of the hypotheses, other findings have emerged during the preparation of this dissertation, which have pointed to further research opportunities.

1) It has become clear that a comprehensive and consistent methodology for measuring the level of digital government's quality of local governments has not yet been developed internationally. A logical question that follows is what the reasons for this gap might be. In my view, the need for a uniform methodology is justified both by the different legal systems and the different legal status of local authorities as the basic local units of public administration, differences in size and the different scope of the tasks they perform.

Although there is consensus on certain basic values and principles,¹¹ it is far from being possible to say that the same parameters apply to a system of local organization which focuses on the performance of public administration tasks and one which is completely separate from the public administration and concentrates exclusively on local public affairs. It is difficult to assess a local government structure in which each municipality has its own representative body and one in which there are municipalities serving tens of thousands (sometimes hundreds of thousands) of inhabitants.

At this point, the question may rightly be raised whether and, if so, on what principles a common measurement framework could be developed. In my view, although the development of a framework for objective comparison is a huge task and far beyond the scope of a doctoral thesis, certain *basic requirements and principles* can be laid down.

The digital government frameworks described in this thesis can be basically classified as maturity or readiness type. While maturity models define maturity levels (based on predefined parameters) and examine the degree of compliance with the relevant requirements, readiness models focus on the factors that are preconditions for the fulfilment of the digitalization commitments contained in the various strategies and policies. The municipality-specific frameworks presented in the previous sub-chapter are *predominantly*

¹¹ See: European Charter of Local Self-Government

readiness ones, with maturity-type indicators not given sufficient emphasis and ultimately less focus on operational issues.

A further problem is the twofold limitation mentioned above: on the one hand, the studies are mostly limited to the *municipality's website* and, on the other hand, for methodological reasons,¹² they focus only on the *largest cities*. With regard to the first question, I believe it is necessary to *move away from the website as a starting point* and to include as an indicator the quality of the actual use of the professional systems available in the state concerned and the use of other communication channels (in particular social media). A real solution to the problem of the size of the municipality could be to *identify principles* of order that would assess the capacity to perform public functions under national law. Effectiveness, as a basic public administration principle, would seem to be a particularly suitable one, although other indicators are needed in addition to efficiency alone, without a consensus theory of efficiency. I see a strong case for further research on this issue, the possible results of which could shed light on important correlations.

2) Another important finding of the thesis is that digital government tools and systems in Hungarian municipalities have indeed developed significantly, which is clearly due to the increasing involvement of the state. This is a positive development, but it should be noted that the monitoring of progress has slowed down in recent years. I consider it particularly important to produce regular monitoring reports in the area of digital administration, where user habits and attitudes seem to be constantly changing. An important question is *whether it is really necessary to maintain the ASP forms-based administration interface in all cases*, or whether it can be replaced entirely in the future by e-Paper or mobile phone applications developed under the National Digital Citizenship Programme.¹³ Again, only further, explicitly interdisciplinary research can provide a conclusive answer to this question.

¹² OECD (2023): Levels of trust in public institutions. Online: https://www.oecd-ilibrary.org/governance/government-at-a-glance-2023_ac2ddac5-en (13-4-2024)

¹³ DMÜ: Nemzeti Digitális Állampolgárság Program 2022. Online: https://www.dmu.gov.hu/documents/prod/DMU_nemzeti_digitalis_allampolgarsag_program_2022.pdf. (9-8-2024.)

5. Author's research-related publications

5.1. Publications in English

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Paradigms and inherent management risks in the regulation of local authorities following the political transformation. In: Ivan, Koprić (eds.) Public Administration in a Democratic Society: Thirty Years of Democratic Transition in Europe. Dubrovnik, Croatia: Institute of Public Administration (2019) Online: <https://iju.hr/ipa/2019/papers/ip19p9.pdf> (co-authors: Csáki-Hatalovics Gyula, Varga Ferenc)

Economic and Budgetary Efficiency of Local Governments Following the Change of Regime in the Light of e-Government Involvement. In: Ivan, Koprić (eds.) Public Administration in a Democratic Society: Thirty Years of Democratic Transition in Europe. Dubrovnik, Croatia : Institute of Public Administration (2019) pp. 81-82. (co-authors: Csáki-Hatalovics Gyula, Varga Ferenc)

Measuring e-government and e-participation. In: Miskolczi, Bodnár Péter (eds.) XVI. Jogász Doktoranduszok Országos Szakmai Találkozója, Budapest, Hungary: Károli Gáspár Református Egyetem, Állam- és Jogtudományi Kar (2020) pp. 175-182.

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The impact of the pandemic on municipal e-administration in Hungary. The impact of the pandemic on municipal e-administration in Hungary. In: Marius, Profiroiu (eds.) Crises, Vulnerability and Resilience in Public Administration, Bratislava, Slovakia: NISPAcee Press (2022). Online: https://www.nispa.org/files/conferences/2022/e-proceedings/system_files/papers/202205202113050.Molnar_Peter_e_administration_pandemic_Hungary.pdf

5.2. Publications in Hungarian

Helyi önkormányzatok a nemzetközi elektronikus közigazgatási jelentésekben. In: Miskolczi, Bodnár Péter (eds.) XIII. Jogász Doktoranduszok Országos Szakmai Találkozója, Budapest, Hungary: Károli Gáspár Református Egyetem, Állam- és Jogtudományi Kar (2018) pp. 151-162.

Okos város kezdeményezések Magyarországon. In: JEGYZŐ ÉS KÖZIGAZGATÁS 21/1 (2019) pp. 19-20.

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