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ERZSÉBET CSATLÓS

Hungarian administrative processes in the digital age: An attempt to a comprehensive examination

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<https://intersections.tk.hu>

[csatlos.e@juris.u-szeged.hu] (University of Szeged)

Abstract

In a world of sustainable development where digitalisation is among the priorities of all states, the question arises how digital Hungarian public administrative procedure is. The study aims to give an overall insight into the state of affairs in Hungary in individual cases and explore the level of digitalisation by exploring statistics on the clients' habits on the usage of the available digital public service on one hand, just to see how it appears in their everyday, and the level of automatisisation in decision-making on the other, from the aspect of the authority. As a result, when assessing the extent of digital public services in Hungary, the focus tends to concentrate on levels 1–3, and possibly level 4, of digital public services according to a five-stages chart settled as a goal by the European Union in 2002 and also used as reference in the Hungarian Act on e-public administrative services. Numbers demonstrate that the utilization of digital public services, despite their availability, is not as widespread among people as it could be. Also, the study enumerates the emergence of automated decision-making by establishing categories based on the examples found in the very few normative regulations to offer a picture of the status of digitalisation of the Hungarian administrative proceedings. While complete automation is still a distant goal, rapid technological advancements and innovations are pushing the legal framework to keep up.

Keywords: digitalisation; automated decision-making; administration; authority procedure

1 Introduction

Digitalisation and artificial intelligence (AI) are concepts that have recently permeated all areas of life. Digitalisation, being an inherent facet of the modern age, can be assessed through various perspectives. The discourse regarding its advantages and disadvantages, as well as its impact on simplifying or complicating our world, remains open for debate (Karajz, 2020). Nonetheless, it remains a factual reality that digitization introduces a plethora of innovations that, to fully reap their evident benefits, unavoidably present challenges not solely to society but also to our legal system and the realm of public adminis-

tration. Under the *Digital Europe programme's* umbrella, the European Commission further advocates for the integration of IT devices and artificial intelligence within public administration. It posits that such integration not only holds exceptional advantages but also yields positive impacts on the environment, as stated in terms of environmental impact (EU's Strategic Agenda 2019–2024). To strengthen the single market, a digital transformation that increases the availability of online public services is therefore necessary, and for this, member states have been invited to redouble their efforts to further digitize public services (Sokol, 2023). Changes are necessary and at the same time inescapable factors in public administration. Technical and social development, such as the emergence of digitization and artificial intelligence, enable or, on the contrary, has already required the use of terms like *sustainability* in the field of public administration for a while (Leuenberger, 2006) and people now use them without really knowing them like digital state, digital administration while States including Hungary are having digital strategies (National Digitalisation Strategy 2022–2023). The state indeed has had a larger data set than ever before during decision-making, and technical development. The online available public services urge the question: How digitalised the Hungarian public administrative procedure? But how precisely such a question can be answered at all?

This study aims to delve into the significance of digitization and the emergence of artificial intelligence, as well as to assess the extent of digitalization within Hungarian public administrative procedures. This will be achieved by initially outlining the fundamental prerequisites for administrative decisions. Subsequently, the study endeavours to elucidate terminology-related issues and, through the analysis of statistical reports and legislative framework, seeks to provide a comprehensive overview of the current state of digitalization within Hungarian administrative services.

2 Theoretical frameworks

Under the code of administrative procedures (Act CL of 2016 on General Public Administration Procedures, GPAP), an administrative action is a process when the authority brings a decision either *ex officio* or by request of the client to define a client's right or obligation, to settle certain clients' disputes, to establish a client's infringement of the law, and to verify a fact, status or data, or to keep records, and where it moves to enforce such decisions. Through this process, in respect of, the authority synthesizes its findings and the applicable legal framework to arrive at a resolution and conclusion for the given case, based on the established and substantiated facts (GPAP Section 3). With abundant information available, individuals may form futuristic expectations about implementing a 21st-century digital public administration. To grasp a comprehensive understanding, it is crucial to clarify concepts. Despite the prevalence of familiar terms, literature and legislation lack consistency and occasionally omit these matters. This study relies on the concept of *electronic public administration* as defined in the work of Balázs Budai as it refers to the knowledge-based transformation and rationalized reorganization of the public sector's relationship system, where the use of information communication technology applications, resembling utilities, plays a dominant role in shaping the image of the service provider state and the efficient state (Budai, 2017). *E-government* often used interchangeably with electronic public administration, is a broader concept that encompasses electronic public

administration. However, it also extends to areas that, by their nature, may not fall within the realm of public administration but can be seen as the outcome of the interaction between administration and information communication technologies (Csáki-Hatalovics & Czékmann, 2019; Nagy, 2022) Therefore, e-government aligns with the concept of the *Hungarian digital ecosystem* used in the National Digital Strategy 2014–2020. Electronic public administration is thus a complex domain that, inter alia, includes *electronic public services* towards citizens ensured via *electronic authority procedures*. In Hungary, as Baranyi notes, the milestones of digitalization were established when Act XXXV of 2001 on electronic signatures declared the equivalence of electronic documents to traditional paper formats (Baranyi, 2023). Later, Act CCXXII of 2015 on the General Rules for Trust Services and Electronic Transactions, seems to establish a legal framework for electronic authority procedures but the Act goes beyond addressing individual cases of citizens (*e-administrative authority procedure or external procedure*) and also encompasses areas falling within the responsibilities and competencies of entities involved in electronic administration including the interaction among administrative bodies and authorities (*e-administrative procedures or internal procedures*) (Act CCXXII of 2015 Section 1, Point 17a); Gov. Decree 451/2016 (XII. 19.) Section 1) and regulates the statements, procedural acts and the fulfilment of other obligations in the online sphere as a part of public services provided by the administration (Act CCXXII of 2015 Section 10). However, the Act fails to address the absence of legal definitions.¹ Instead, following the provisions of the 2002 EU strategy, the legislative comments attached to the Act on e-procedures quote the action plan on how to improve the availability of online public services for citizens and also on the rethinking of internal organisation and electronic exchanges between institutions (eEurope, 2002).

The Hungarian legal literature, but mostly because of Act CCXXII of 2015, the fundamental legislation on e-public services also relies on and uses the five-level stages development chart to measure the Hungarian public services from the view of digitalisation (Molnár, 2007; Péterfalvi, 2014) The first and initial step involves the (1) *display of information electronically*, typically through a website. The next stage means (2) a *one-way connection* as citizens can download the necessary administrative forms electronically, but they cannot yet submit them electronically. When documents can be filled out online, checked, and returned electronically with proper identification (Veszprémi, 2018), it is already a (3) *two-way interaction* and interactivity. While personal appearances are not required to initiate a case, clients may still need to visit the authority at least once, often for payment purposes or document collection. The (4) *transaction level* of public services already aims to minimize the citizens' physical contact with the authority; however, human interaction is maintained on the authority's side, and the cases are handled and decided by the human workforce. When no human interaction on either the side of the citizen or the side of the authority is needed because the IT solutions can replace all, (5) *complete automation* is achieved. This is the highest level of e-authority procedures. All levels have sights in the Hungarian public administrative services, although this latter is still relatively rare now. This level corresponds to what is known as an automatic decision-making procedure

¹ The English translation of the Act is based on the unofficial translation found in the Hungarian Legal Database. The trouble with the terms and definition is also reflected in the translation, which was modified by the author of this manuscript to maintain coherency throughout the paper.

in Hungarian authority procedure law which has existed since 1 January 2017 by Section 40 of the GPAP and Section 11 of Act CCXXII of 2015. The term *digitalization* can encompass various meanings, and in the absence of legal guidelines, the boundaries of its usage when associated with public administration are primarily defined by the author's discretion, so it is worth defining what meaning it carries in this study. However, when considering the impact of digitalization on activities and work processes, especially within the context of authority proceedings, it can be characterized by three key elements. First, the level of *work automation*, the substitution of human labour with automated machine tasks. Then, the *digital data transformation* which encompasses the conversion of all data into digital information and vice versa, and the *platform-based coordination*. This aspect involves the utilization of digital networks for algorithmic coordination of economic transactions (Fernández-Macías, 2018). Following a similar concept, the *Hungarian Digital Welfare Programme* highlights the cost efficiency and the availability for citizens as main features of digital administration. Digital administration reaches its pinnacle in the form of digital public service, and its most advanced stage is achieved when human interaction is eliminated on both sides (automated decision-making process). However, it is important to note that this interpretation provides a narrower definition. If any intervention is required, such as citizens submitting additional documents or information, it would extend beyond the scope of automated decision-making but can still be considered a digital administrative procedure under the terms of Sections 40–41 of GPAP, as other relevant phases of the procedure remain in the digital realm. In the context of automation and digitalization, *artificial intelligence* (AI) can be viewed as a process for addressing tasks that typically demand human intelligence, utilizing information communication tools (Kovács et al., 2020; Czékmann et al., 2021). However, a more focused perspective highlights its pivotal role in decision-making, encompassing predictions, recommendations, and decision rendering related to human-defined objectives affecting both real-world and virtual environments (Futó, 2022). This characteristic effectively links AI to the complete automation of administrative authority procedures.

Since 2020, Hungary has also implemented an AI strategy for the period of 2020–2030, with one of its key principles being the 'data-driven service state'. Among its objectives is the advancement of automatic decision-making capabilities. As a result, it becomes crucial to investigate the role of artificial intelligence in official procedures conducted in the digital space and to what extent it influences the merits of decisions. Therefore, the primary objective of this study from now is to get a closer look to assess the level of digitalisation within the Hungarian public administrative authority procedures, meaning the emergence of digitalisation throughout the decision-making process from the start of the procedure till the communication of the decision on the merits to the client.

3 Methods and discussion: Digitalisation in the view of numbers

The digital revolution is seen in the pace of technological change in the economy, driven by a massive expansion of our capacity to store, process and communicate information using electronic devices. The widespread use of digital technologies implies a profound transformation of social, economic and political systems, in the same way as the steam

engine or electricity transformed past societies (Fernández-Macías, 2018). However, this development is based on complex elements and does not transform from zero to a service level of perfection. Indeed, from March 2000, the results of the implementation of the e-Europe programme are measured in the Member States through so-called *benchmarking activities*. The essence of the method is that the results and shortcomings of the Member States are compared with each other using standardized quantitative and qualitative indicators. The examined services are classified on a scale from 1 to 4, on which the highest value, 4 points, is given to the service that makes the entire administration possible online. If the points obtained in this way for each service we added up and compared to the maximum possible score, we get the percentage of the level of development of public services available online (Snijkers, Rothier & Janssen, 2007). Digitalisation is one of the major challenges of our time which has required a reorganisation of both the public administration's approach to citizens and its infrastructure. (Bencsik et al., 2023) Regarding its effective nature, Balázs, Gajduschek and Hoffmann (2020) highlight that despite the extensive amount of literature, there is no generally accepted methodology for measuring the *effectiveness* of public administration. Digital Economy and Society Index (DESI), for instance, ranks the countries of the Central and Eastern European Union including Hungary in the bottom third of the scale, particularly in terms of the efficiency of public services (Bencsik & Karpiuk, 2023), although the question arises of what exactly it means in a given country. There are various measurement methods such as DESI, EUROSTAT, GapGemini, etc. (Orbán, 2021). However, for an ordinary citizen, what truly matters is whether official affairs can be handled quickly and easily. Aligning with the concept that a well-functioning state aims to serve its citizens by streamlining their interactions with authorities and minimizing administrative costs (Nagy-Gál, 2014; Józsa, 2016; Fábián & Stankovics, 2022), the study broadly aims to evaluate effectiveness from the citizens' perspective. The primary focus is their access to information *inter alia* the ability to manage their affairs online, bearing in mind that electronic administration is a right even if it is not an absolute unlimited one (Act CCXXII of 2015 Section 8(1); Baranyi, Homoki & Kovács, 2018). It is essential to note that, in contrast, legal entities within the business sector, as well as public bodies and authorities, are obligated to manage their official affairs electronically unless the law specifies otherwise (Act CCXXII of 2015 Section 9). These entities fall outside the scope of this study due to the distinct nature of their approach. In individual authority proceedings, on the authorities' side, effectiveness is interpreted in the level of reduction of human intervention in favour of IT solutions in decision-making processes.

The first and foremost task after identifying some terms, is to see the numbers on the level of digitalisation. To that end, the official (domestic) statistics seems to be helpful, however, the problems of the lack of clear definitions and the usage of overlapping and unclear terms make it difficult to explore the full picture. Given the absence of a uniform definition for these terms and the dynamic nature of e-administration development, coupled with rapid changes in the five-step public service e-development chart, obtaining precise statistical data on the current state of Hungarian public administration and administrative proceedings is challenging.

Nonetheless, a partial image can be seen below, drawn from the biannual comparative tracking conducted by the Hungarian Central Statistical Office on the percentage change in levels of the digital public services chart established by the 2022 EU action plan (see Figure 1).

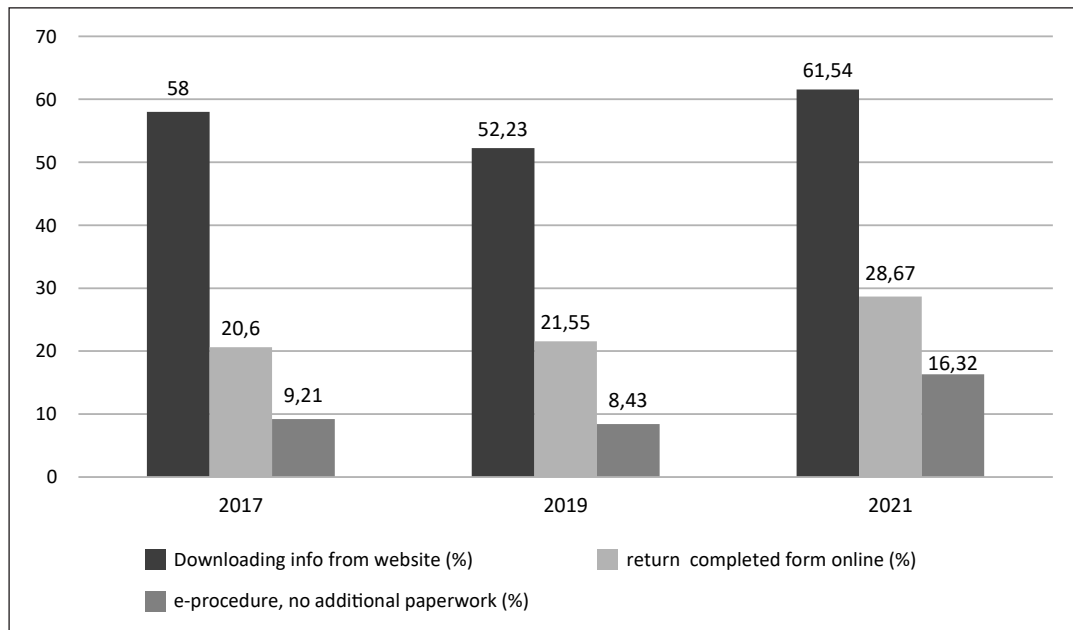


Fig 1 Habits of relying on digital public service over in-person when both are available

Source: Hungarian Central Statistical Office. <https://statinfo.ksh.hu/Stainfo/haViewer.jsp> (author's edition)

As of 2021, all public bodies have their websites available. However, it is important to note that the availability of their online services may not necessarily match the level of public service they are competent to provide through online procedures. The information provided on these websites is diverse, ranging from local community news and tourist information to organisational details. Additionally, users may also find electronic authority procedure-related information and legal materials.² It is impossible to list all types of legal cases and consider which parts of the process, from the initiation of the authority procedure to the communication of the decision, can be supported or replaced by IT-related solutions. Nonetheless, as depicted in Figure 1, the mere possibility does not necessarily translate into people fully utilizing the available level of digital public services.

The renewed Magyarország.hu portal, a national one-stop shop, launched in February 2020, is gaining increasing popularity. As of January 2022, over 3000 services were published online, including more than 400 fully integrated services using the portal's intelligent online form solution. Since July 2021, the portal's English language interface has been publicly available, and as per the Single Digital Gateway Regulation, 183 service descriptions were accessible in English. (DPA HU, 2022) As of September 2023, more than 4600 types of cases were on display; the development is palpable.³ Accurate comparative

² Public authorities with a website; services available on websites of public authorities; e-government services available on public administration websites: <https://statinfo.ksh.hu/Stainfo/haViewer.jsp?lang=en> (14. 11. 2023).

³ See *Ügyintézés szabadon*. https://magyarorszag.hu/szuf_osszes_szolg_lista (14. 11. 2023).

data is not available, but percentages and ratios on the habits of Internet users people may be seen below and a certain picture can be drawn from the digital nature of public administrative procedures. From this perspective, in 2021, the use of digital public services, despite their availability, is not as widespread among people as it could be as seen in Figure 1.

Between 2006 and 2021, the Hungarian Central Statistical Office measured the use of e-public administration portals according to the number of Internet users (Figure 2), to see how often Internet users use the available e-options in cases when there is an e-alternative to contact the public administrative bodies online, use the website to gain information on procedures, use it to download forms established to initiate a new procedure or use the available portal to submit the filled in forms online.

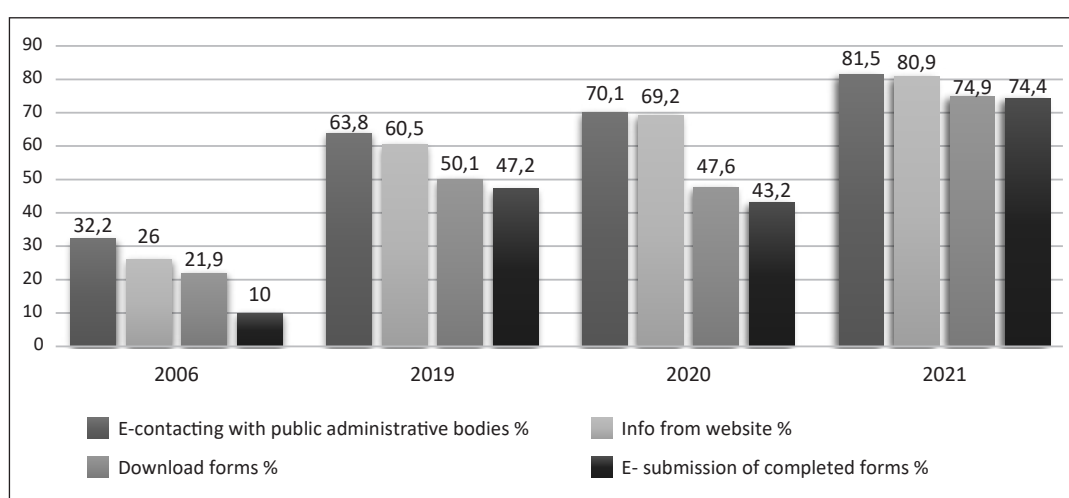


Fig 2 Habits of using e-public administration with the percentage of all Internet users

Source of data: Hungarian Central Statistical Office https://www.ksh.hu/stadat_files/ikt/hu/ikt0020.html (author's edition)

When including the first year of measurement in the comparison with the most recent data, a clear increase is evident in the figures, with a slightly more significant growth rate observed from 2020, attributed to the rapid challenges of the Covid era. Due to the lockdown and curfew era, along with moving to telework to minimise exposure of public servants to the virus and to ensure the continuity of public services in many places of the world (SIGMA 2020), the significance of e-services, enabling individuals to handle affairs from the comfort of their homes, has increased. Necessity has underscored that the most common administrative services have become efficiently addressed online, and claims can be submitted electronically (Ritó & Szabó, 2021) It is worth noting that when analysing the Visegrad Group (V4) countries, this group including Hungary outperformed the EU average during the COVID era. Therefore, it is expected that they will continue to make rapid progress in their digitalisation efforts (Esses et al., 2021). On the other hand, in the context of the entire EU, Hungary ranks below the EU average in all areas when assessing Member States' levels of digitalisation in 2022 (DESI HU, 2022).

In 2022, data related to specific usage levels and complex activities that characterise the use of e-public administration portals cannot be directly compared to data from previous years. This is due to a change in the subject of the measurements. The most significant change is the individual column of the tax declaration. It is a procedure that is obligatory for everyone with a taxable income each year. Based on the regularly reported data by the employers, the tax authority automatically, without special request, prepares the draft tax declarations and with the help of an Online Form Filling Application (ONYA) since 2019 for those who have client portal identification,⁴ tax declarations can be submitted online, and as can be seen, the majority of the tax declarations were submitted online in 2022⁵ (Figure 3). Taxation is, indeed, a success story, particularly in areas of law (Act CXVII of 1995 Sections 12/C and 48; cf. Nagy, 2006) where AI is already aiding processes, especially in situations where the numerical nature of the data is prominent. In this context, digitalisation, especially AI, currently serves as a complement rather than a substitute for human intervention in general (Futó, 2020).

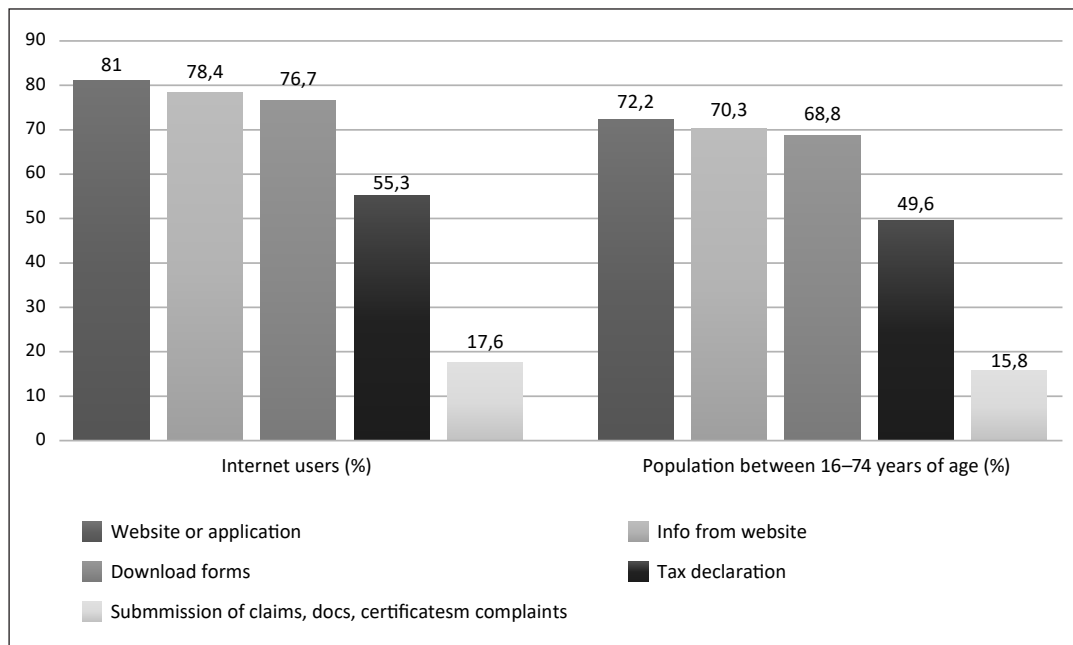


Fig 3 Habits of using e-public administration with the percentage of Internet users and the main age group (17-64) in 2022

Source of data: Hungarian Central Statistical Office https://www.ksh.hu/stadat_files/ikt/hu/ikt0020.html (author's edition)

⁴ English language website is available at <https://ugyfelkapu.gov.hu/registracio?lang=en> (14. 11. 2023).

⁵ It is also possible to request the paper format to be sent as a regular mail. Only Hungarian language website is available at <https://onya.nav.gov.hu/#!/login> (14. 11. 2023).

The European Commission has been monitoring the digital development of Member States since 2014. It publishes evaluations based on the Digital Economy and Society Development Indicators (DESI) established in 2015, which include measuring the level of digital public services (Decision (EU) 2022/2481). According to the surveys, significant progress has been made in the field of digital public services in Hungary on the demand side of e-government: in 2021, 81 per cent of the internet users had already tried to access online public administration services at some point, compared to 64 per cent in 2019, and thus exceeded the 2021 figure EU average of 65 per cent. However, the quality and completeness of the services provided to citizens is still relatively low. It is also notable that even though Hungary performs well in terms of broadband connectivity, there is a notable weakness in human capital; as for basic digital skills, Hungary falls below the EU average. (DESI HU, 2022; Budai, 2022) However, recent data from Eurostat Information Society indicators in 2022 reveal a significant increase in the percentage of individuals in Hungary using the Internet to download official forms from public authorities and to send in filled in forms (DPA HU, 2022; Soós, 2023).

What is not covered and lacks measurable information is the automated decision-making process, which represents the highest level of digitalisation. Therefore, the study delves deeper into decision-making processes that involve reduced or eliminated human intervention. This experience is often more pronounced from the perspective of the administration rather than that of the citizen whose individual case is dealt with. Currently, there are no available statistical data like those mentioned earlier. Consequently, the study is constrained to the examination of specific legal provisions. To explore this dimension of the digital landscape, textual empiricism is applied using the current legal framework (National Legal Database) to analyse and discern the characteristics of Hungary's level 5 digital public services.

4 Full automation of the authority procedure

In Hungarian legal practice, the method of decision-making without human intervention has been in place since 1 January 2017. This procedure represents the highest level of development in electronic administration. It can be applied both on request and in cases of *ex officio* procedures (Act CCXXII of 2015, commentaries to Section 11). The authority conducting e-administrative procedures is required to publish the methodology and essential rules of the applied decision-making procedure on its website and personalised administration interface. With this information, after electronic identification, the client can submit their request through the electronic form provided by the electronic administration body. In cases of automatic decision-making, the electronic administration body makes its decision based on available data and data obtained through automatic information transfer, all without human intervention, and communicates the decision to the client. The legal requirements for fully automated decision-making, much like the dynamic evolution of technology, have undergone multiple changes, expansions and clarifications. Departing from previous uniform regulations, as of July 2023 by Act LX of 2023, legal provisions now differentiate between two types of automatic decision-making procedures initiated on request, contingent on whether the request was submitted electronically or through other means.

A *fully automatic procedure* is established under the scope of Act CCXXII of 2015 when the claim is submitted online, the decision-making requires no deliberation, and the data essential for handling the case are either readily available to the system in a format suitable for automated processing or acquired through automatic information transfer. In such a procedure, the elucidation of facts, the formulation of a position on the merits of the decision, and other decisions pertinent to the administration of the procedure occur without human intervention, culminating in the closure of the procedure. Following this, the system is responsible for communicating with the client. It is worth noting that due to a recent legislative amendment, the administering body must inform the client if the decision was made through an automatic decision-making procedure. This supplements the existing information-sharing obligation on the part of the authority, which was previously associated with designating the legal provision establishing the authority for the procedure. Additionally, the responsible body that ensures the IT framework for electronic administration must continue to publish the methodology and essential rules of the automatic decision-making process on the personalised administration interface and the administration interface used in the case of providing the electronic route. This is a crucial provision for safeguarding the client's procedural guarantees. This type of (absolute) automatic decision-making procedure is precluded if it is prohibited by law or government decree in the given case. However, other decisions and notifications necessary for administration can be made without human intervention even if the procedure is not executed through automatic decision-making by the electronic administration body (Act CCXXII of 2015 Sections 10 (3)–(4)). The application condition for this type of procedure, in this case, is set by the GPAP, with the subjunctive requirement being the absence of an adverse client.

On the other hand, GPAP allows the procedure regulated by the law to direct the case to an automatic decision-making procedure even if the claim was not submitted electronically. The conditions for this include the provision by law or government decree, the availability of all data to the authority on application submission, the decision not requiring consideration and the absence of a client with an adverse interest (GPAP Section 104 (6)). In such cases, there is an evident form of human interaction concerning the acceptance of the application, creating a link between the *fully automatic procedure* and the *summary procedure*. The distinction lies primarily in the complexity or simplicity of the case, as well as the timeframe available for administration. Examples of registrative acts generated in the case of personally submitted applications can illustrate this type of procedure, as highlighted in the legislative commentaries, such as the applicant for a residential address card issued at the *government window*, a general authority that, among others, ensures a *one-stop-shop* forum for clients (Veszprémi & Barta, 2019).

Following the legislation in force, the vast majority of cases are procedures *relying on data provided from authentic public records*.

4.1 Automated decision-making procedures relying on data provided by public records

Registering or changing data in authentic public records or the issuance of any sort of data confirmation, even though atypical in the form of a decision-like document requires authority proceedings, including all the necessary procedural safeguards (GPAP Section 7).

The public credibility of these records necessitates the presence of thorough and *reliable facts* that can be treated quality data (Hofmann, 2023) upon which data changes in the record are based. Public records play a crucial role in confirming rights and obligations. Furthermore, the electronic nature of these registers makes it inevitable that the advantages of digitalisation are exploited to enhance their completeness and ease their maintenance and updates (Kovács, 2021).

In situations where data are readily available or obtained by the authority through automatic information transfer, the authority is legally bound, and the decision is reached through a data comparison process. This typically entails the client applying for a certificate and providing the necessary identification and application data through an online interface. The decision can then be based on a data match with the authentic information stored in the public records. Public records are deemed authentic, and the data they contain hold legal status as factual information (GPAP Section 97(2)). The option of automatic decision-making in cases like applying for an official certificate of social security status during the authority procedure when the certificate is a precondition to the application for certain aid appears to be a notably customer-friendly solution (Gov. Decree 44/2019. (III. 12.) Section 3). Nonetheless, an intriguing development related to certain official certificates is the necessity of submitting applications in person (e.g. Gov. Decree 301/2009 (XII. 22.) Sections 2(8) and 118/C; Gov. Decree 384/2016 (XII. 2.) Sections 17/A and 27(1), (4), Gov. Decree 331/2006 (XII. 23.) Section 20/A; Gov. Decree 327/2011 (XII. 29.) Section 10(4)), even in shocking cases like claiming for a parking card for disabled persons (Gov. Decree 218/2003. (XII. 11.) Section 10/A). In the case of certificates, this requirement is understandable due to their specific content elements, such as photographs (Gov. Decree 326/2011 (XII. 28.) 10(1a)). However, there are instances where it might be justified to move away from in-person procedures in favour of a more client-friendly approach. Notably, Hungarian jurisprudence provides an example where automatic decision-making procedures for official certificates were briefly allowed but subsequently repealed by the legislator.⁶

4.2 Simple data changes in public records by automated decision-making

In certain cases, the concept of automatisisation becomes truly evident, where data changes in one database can automatically initiate changes in another database due to their inherent interconnectedness. This practical approach is exemplified by the upcoming real estate registration procedure law. The new rules provide the possibility to remove from the register any right or fact whose enforcement is subject to a legal deadline if that deadline has elapsed. Additionally, if the parties can determine the termination deadline based on the law and the deadline set by the parties and indicate in the registration has already passed, or if it can be established beyond doubt that the holder of rights like usufructuary, widow-

⁶ E.g. Gov. Decree 19/2009. (I. 30.) on the implementation of the provisions of Act XL of 2008 on natural gas supply, Section 106/A [until 31. 08. 2021]; Act CXXXIII of 2005 on the rules of personal and property protection, as well as private detective activity, Section 8(2b) [until 03. 12. 2020]; Gov. Decree 72/1996. (V. 22.) on the exercise of water management authority, Section 5(13a) [until 31. 12. 2019].

hood, maintenance, life annuity, or care rights, as well as the right of use, has passed away, the law allows for their removal from the real estate register or the personal data and address register, based on the data extracted from it. On the contrary, as in the case of ownership data, such automatic modification will have resulted from *ex officio* automatic decision-making only in very few issues (Gov. Decree 179/2023 (V. 15.) Sections 154(6) and 135(4)).

In other cases, the client is either required to initiate the process in person, and then the case is decided in an automatic decision-making process (Gov. Decree 304/2009 (XII. 22.), 2§ (1), (3); Gov. Decree 326/2011 (XII. 28.) Section 1/D(5); Gov. Decree 146/1993 (X. 26.) Section 18(3a)), or they can submit their claim online to modify a married name for instance (Act I of 2010 Section 63(11)), or they can do both as in the case of claiming a Covid vaccination certificate (Gov. Decree 244/2023 (VI. 22.), Section 7(1)).

4.3 Automated decision-making in simple cases

In cases that meet the conditions of the so-called summary procedure, where there is only one possible legal solution and no fact-finding or evidentiary actions are required based on available information, the decision-making and communication of the decision must be completed within eight days. Technology now enables the substitution of human labour for certain basic jurisprudential tasks like these. In the case of maternity aid, for example, as it is granted to every mother as a basic allowance, the application submitted electronically is processed by the requested body through automatic decision-making (Gov. Decree 223/1998 (XII. 30.) Section 24(5a)).

However, it is more illustrative to see the difference in the application for travel reimbursement support related to specific health services. Prior, to visiting the specialist, the patient had to then pay another visit to the family doctor with the travel tickets to get the certificate to have the reimbursement done by the health insurance authority. Instead, one simply needs to inform the specialist of the support request, which the doctor records in the system. The electronic request for travel reimbursement support is processed by the health insurance authority through an automated decision-making procedure. This procedure takes into account the distance between the place of residence or stay and the location of the healthcare provider, as well as the established fee rates, as defined in the matrix. The assessment considers whether the journey was made by car or public passenger transport. If public transport was used, the travel discount applied during the trip must be declared when the claimant applied for the support. The health insurance authority verifies the entitled discounts based on available records. If the data in the register and the insured's declaration contradict each other, the health insurance body will consider the higher discount rate to which the insured is entitled according to the provisions of the law (Act LXXXIII of 1997 Section 61(6); Gov. Decree 217/1997 (XII. 1.) Section 11).

It can be considered one of the most automated procedures, particularly in more complex cases such as the *ex officio* procedure for imposing an administrative fine for violations of the Road Traffic Act. This procedure is triggered by violations documented through recordings made and transmitted with a technical device as specified in a separate law (Act I of 1988 Section 21). In 2016, the Intelligent Road Camera Network, consist-

ing of both variable and fixed complex traffic control points, and an associated data processing system, was introduced (Ritó et al., 2018) This network is capable of documenting various violations of traffic rules (Act I of 1988 Section 21(1) a)–c); e–g)), through an electronically deployed, automatically operating road inspection system and inspection equipment that does not require continuous operator supervision. Essentially, they create records by capturing what occurred in the form of a series of digital still images with an adjustable image recording frequency. Since these devices are certified measuring instruments, they should be considered error-free affecting the measurement results until proven otherwise (Act XLV of 1991 Section 13(3)). The log (record) includes the following information: equipment identifier (quasi-executive authority), person handling the equipment identifier, log-in and log-out start and stop times, recording location (encoded, in text, or with GPS coordinates, recorded on the image recording for determining the inspection location), as well as the identifier and date of the photo recording(s) that provide evidence of the violation of the legal provision. Within 12 hours after being electronically recorded, all images captured by the control equipment used to document violations are subject to administrative fines, along with the relevant parameters (such as control device settings) and are transmitted electronically to the data transmission system linked to the IT system of the police department responsible for control tasks. Furthermore, the technical configuration of the system must adhere to several criteria to ensure that it provides accurate data that can be considered proven facts. (Decree of Minister of Economy and Transport 18/2008 (IV. 30.) Section 5(1)). This, in turn, ensures that the authority has legally obtained the evidence available and that procedural guarantees are upheld in the technical solution, mapping to the rules governing procedural actions.

In cases involving violations related to toll payments, a similar principle is applied. Recordings that serve as the basis for determining the legal consequences are obtained from the electronic system (UD system as of Act LXVII of 2013 Section 2(17)), which facilitates toll declaration, assessment, and collection, as well as the monitoring of legal usage of elementary road sections subject to tolls. The authority enforces violations of rules concerning toll payments for the use of toll road sections, proportionate to the distance travelled (Act I of 1988 Sections 21(1) h) and 21/A(3a)). The National Axle Weight Measurement System uses its data capabilities to not only support inspection tasks related to compliance with regulations on the maximum permissible total weight and axle load of road vehicles but also to offer comprehensive support for road traffic inspections. Additionally, it provides data for the inspection activities carried out by state tax and customs authorities and is integrated with the UD system. Through a direct data connection, the UD system forwards relevant data to the National Weighing System. This includes images captured of the vehicle in question, along with its official markings, vehicle registration number, nationality, detection location, and time. These data form the basis for subsequent procedures. The traffic authority may initiate *ex officio* actions, such as removing a vehicle from traffic, if, for instance, the National Axle Weight Measurement System identifies a vehicle operating without the mandatory motor vehicle liability insurance coverage mandated by law. If the conditions outlined in general administrative regulations are met, this removal from traffic occurs through an automated decision-making process (Act I of 1988 Section 21/K and commentaries).

In such procedures, the synergy of multiple factors can be observed. Various procedural actions and evidentiary facts come together to complete the fact-finding and decision-making processes in the digital realm. This marks the inception of a new sub-chapter, particularly regarding atypical decisions. Although to a minimal extent, the exercise of discretion can also be noted, especially when determining the amount of the fine. The content of the notes obtained through data transfer can be attributed to the source of evidentiary acts for clarifying the facts, but the key question pertains to the description of the logical operations leading to the decision. In all cases, the application of the automated decision-making procedure hinges on the condition that the authority has no discretion. In other words, a legal decision is what can conclusively resolve the case on its merits. It can be said that the formula is quite straightforward: based on the available data and the subsequent alignment with legal provisions, there is a single solution to each case. The decision-making process relies on a linear logical model.

4.4 Automated decision-making with profiling

The decisions discussed thus far have relied on exact facts from public records or electronic evidence that can be deemed authentic. However, there is an area of automation where the system itself predicts future behaviour based on specific characteristics and makes decisions based on assumptions in this regard. Profiling essentially constitutes a form of risk assessment, involving the automated identification of correlations within databases and their interpretation to group or categorise specific individuals or entities based on shared characteristics. This categorisation then allows for the identification of other similar individuals or entities (Pataki et al., 2017). Profiling aims to provide a reliable prediction based on data, often indirectly linked to the individual. However, it typically relies on statistical data to draw correlations between databases and data. These conclusions can then be projected onto an individual or identified as a member of a group (Gäckle, 2020). It is important to note that profiling does not address the ‘whys’ and ‘wherefores’ of these conclusions (Hildebrandt, 2008) as they are technical questions related to the algorithms used. As a result, the outcomes of profiling should be treated as rebuttable presumptions rather than facts. The factual accuracy and truthfulness of these conclusions are highly debatable. In our current legal system, there are no examples of decisions being made solely through profiling in an automatic decision-making procedure, within the conceptual framework of this study. AI is mainly used for communication and information sharing to replace public servants (Marsovszki, 2022; DPA HU, 2022). In 2022, nearly half of the 354,693 chat conversations initiated on the *Government Customer Line* interface were successfully concluded by customers using the artificial intelligence-supported system. The *AI-assisted communication assistant* (chatbot) addressed 38.5 per cent of the questions posed on this channel (600,366 in total). Additionally, it facilitated the tasks of public servants in 59.5 per cent of cases by offering answer suggestions. Only 2 per cent of the remaining questions necessitated full responses from public servants (Ministry of Interior Statistics, 2022)

5 Results

In summary, based on the available information and after clarification of terms and investing efforts to see a picture, when assessing the extent of digital public services in Hungary, the focus tends to concentrate on levels 1–3, and possibly level 4, of digital public services and numbers demonstrate that the use of digital public services, despite their availability, is not as widespread among people as it could be. Generally, digitalisation currently complements rather than replaces human interaction, offering significant relief, particularly in individual procedural acts, but not yet dominating the overall official procedures resulting in public services. Full automation is not widespread unless it constitutes a separate measurement level. Among the priorities of the national digitalisation strategy for achieving a digital state is the continuous improvement of the quality and scope of digital public services, both domestically and internationally. This includes the incorporation of artificial intelligence-based solutions and automatic decision-making to achieve the most accurate digital understanding of customer intentions, ultimately aiming for the automation of processing and decision-making in the medium and long term, with minimal or no human intervention. However, at the moment automated decision-making is only available in simple cases and mostly relies on pure data matches with authentic public records.

The central concept in the automated decision-making system is *data* (Kiss, 2021), accessible in the form of databases and generated in connection with the procedure and this focal point makes it possible to avoid the presence of the client as well as the non-necessity of human intervention in the majority of the cases. It undergoes a series of diverse operations, shaping it in a manner that leads to a substantive decision within the legislative environment that upholds procedural guarantees in line with the rule of law – similar to human decision-making. The pursuit of simplicity must not compromise the legality of decisions and the decision-making process. Additionally, safeguarding citizen data and information, especially in terms of cybersecurity, should be re-evaluated. Furthermore, as Hoffmann describes, the utilization of IT development should not become an Achilles' heel for the system (Hoffmann, 2023). As the current state of affairs, the legal remedy against an automated decision is a relatively neglected area of legislation (GDAP Section 42; Czékman & Czibrik, 2023). This assumption likely stems from the belief that, at this level of exploiting automatisations, the need to apply for a review is not significant. For instance, upcoming changes in the Real Estate Registration Act provide the opportunity to register a change of ownership within the framework of an automatic decision-making procedure, contingent upon meeting numerous conditions. However, this is not applicable if one of the affected persons is a minor under guardianship, or if the person in question is no longer legally competent at the time of submitting a claim (Gov. Decree 179/2023 (V. 15.) Section 235 (4); (7) from 1. 2. 2024).

6 Conclusions

The study aimed to provide an understanding of what digitalisation and the emergence of artificial intelligence mean in the context of authority decisions made in individual cases

and the level of digitalisation in Hungarian public administration. While complete automation is still a distant goal, rapid technological advancements and innovations are pushing the legal framework to keep up.

The study began by clarifying the interpretation of digitalisation in official procedures, emphasising that there is no universally accepted dogmatic background or conceptual system in legislation or the legal literature. It provided a comprehensive overview of the digitalisation level of administrative authority procedures in Hungarian public administration at present, emphasising that customer-oriented services are primarily measured by information availability, electronic contact options and electronic request submission, rather than the automation of the procedure itself.

Next, the study examined automatic official procedures as the highest degree of digitalisation and e-administration. It delved into the capabilities of automation in decision-making mechanisms but noted the absence of statistical data for drawing general conclusions. While automation has been a legal option in Hungary since 2017, its dominance in official procedures is not significant compared to other case types. Automation is most commonly used in case groups where decisions rely on data from authentic public records. Regarding more complex decision-making mechanisms that involve electronic fact production without human intervention, the study noted their limited current scope but anticipated future growth.

Overall, the study provided insight into the state of digitalisation and automation in the procedures of Hungarian public administration.

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