E-GOVERNMENT IMPLEMENTATION

IN PUBLIC ADMINISTRATION IN EASTERN EUROPE:

ESTONIAN LESSONS FOR MOLDOVAN POLICYMAKERS

By

Emil Burinschi

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Supervisor: *Associate Professor Thilo Bodenstein*

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Author's Declaration

I, the undersigned BURINSCHI EMIL hereby declare that I am the sole author of this thesis. To the best of my knowledge this thesis contains no material previously published by any other person except where due acknowledgement has been made. This thesis contains no material which has been accepted as part of the requirements of any other academic degree or non-degree program, in English or in any other language.

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Date: 06.06.2022

Name (printed letters): BURINSCHI EMIL

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Abstract

Following the appointment of the Gavriliță executive in 2021, E-Government reform efforts in Moldova have returned at the front of the political agenda. Although academic literature describes the benefits gained from providing digital public services, limited resources define present implementation efforts and challenges witnessed in the Eastern European emerging economies. Through a qualitative framework of analysis, including collected semi-structured interview data, the study explores the existing e-service architecture in Moldova and Estonia to understand the peculiarities of the two public E-Government systems.

The research identifies the extensive use in Moldova of project-based initiatives detrimental to implementing an all-encompassing E-Government reform. By pursuing a narrow approach towards reform endeavours, the issues of limited interoperability of platforms and reduced usage of e-services by the population, combined with a lack of long-term strategic vision and poorly empowered public officials are found to hinder the implementation of digital tools in public service provision. In light of these challenges, the study elaborates a set of recommendations to address them and to embolden Moldovan decision-makers to implement a genuine E-Government reform. Finally, the paper provides additional avenues for research to address encountered limitations and stimulate intellectual reflection on the subject.

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CEU eTD Collection

List of Abbreviations

DESI	Digital Economy and Society Index
E-Governance	Electronic Governance
E-Government	Electronic Government
EGA	Moldovan E-Governance Agency
E-Signature	Electronic Signature
EU	European Union
DG NEAR	Directorate-General for Neighbourhood and Enlargement Negotiations
ICT	Information and Communications Technology
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UN ICJRI	United Nations Interregional Crime and Justice Research Institute
UNPOG	United Nations Project Office on Governance

Introduction

At the advent of the twenty-first century, with the promises of technological development expanding previous possibilities of policymakers, the design and use of digital public services became the "new normal" in public service provision. Whenever applying to receive a national identification document, filing your tax declaration, or registering an economic enterprise, E-Government is a key feature and perceived requirement of the modern state. In light of the COVID-19 pandemic, government officials and citizens alike perceived the importance of receiving accessible, timely, and first-rate services notwithstanding societal restrictions. In fact, recent public policy solutions (e.g. EU Digital COVID Certificate) confirm tendencies that once-in-a-generation disruptor events accelerate systemic change and streamline innovations.

Hereby, the growing academic literature on E-Government indicates that the use of advanced electronic technologies is not as novel as it may appear, with the popularization of the use of the term taking place after the spread of the internet in the 1990s (Henman 2010, 9). While the role of the state as "government" is contested currently through the involvement of both private actors and international organizations in traditional spheres of public administration, the provision of digital public services is an area in which state institutions can retain prominence and enhance diminished legitimacy. In addition, this relationship needs to be observed through a multi-directional lens, understanding that through gathering and providing information, E-Government contributes to making modern government "operable" (Henman 2010, 31).

Notwithstanding the various E-Government domains in which the use of technology is implemented (e.g. e-democracy, e-governance), the following study focuses on the provision of e-services. The reason behind this is due to the pursuit of a comparative analysis of policy implementation in two Eastern European states. While Estonia has been at the forefront of digital transformation due to a remarkable implementation of technological innovations since restoring independence in 1991, Moldova has been less visible in the digital community. Nonetheless, the present Moldovan government's push to emphasize digital transformation as a reform priority offers prospects to consider how the experience of Estonia can advance Moldovan standards of public administration. Serving the call for enhanced digitalization and addressing the perceived issues within the local e-Government architecture, the study poses the following research questions:

How does the implementation of E-Government e-services advance in the Republic of Moldova?

Through which measures implemented by Estonian policymakers can Moldovan officials enhance their existing efforts to address perceived deficiencies and correspond to public demands?

In light of the present executive's ambition to reform state institutions and proceed with the digitalization of existing public services (Gavriliță Government 2021), the topic of inquiry illustrates a vital matter on the local agenda. Considering the perceived gap between Moldova and technologically advanced states and the sense of urgency to revise the status quo, the digitalization of public services in Eastern Europe reflects both a necessity and an opportunity for states to redefine the social contract with their citizens and enhance the quality of service provision and standards of life overall. Hereby, due to a considerable presence of Moldovans residing abroad (sources indicate that more than one million Moldovans reside abroad on either a permanent or a temporary basis), the provision of online services could ease service provision and access for almost every Moldovan family. Lastly, the provision of electronic services acts as a successful deterrent to reduce corruption in public institutions – a key issue in Moldova as determined by international reports (UN ICJRI & EU DG NEAR 2021).

To establish informative answers to the research questions, the study employs a qualitative framework of analysis, combining desk research of secondary sources and primary source analysis, while performing semi-structured interviews with active stakeholders. To provide an explorative and explanatory view on the topic, these interviews involve local and international experts, decision-makers from both Estonia and Moldova, as well as representatives of the academic community. In addition, the study offers a view on the accessibility implications of the reform endeavours through interviews with the adult population and leading representatives of the Moldovan diaspora. These interviews supplement the expert and leadership views by offering a voice to those threatened by the "digital divide".

Importantly, the findings of the study acknowledge the presence of an emerging legal and service architecture foundation in Moldova, below respective Estonian standards. Based on the interview findings, the research deems the extensive use of project-based approaches detrimental to implementing an all-encompassing E-Government system in the country. Through this narrow approach to public service implementation, the issues of limited interoperability of electronic platforms and reduced usage of e-services by the population,

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combined with a lack of strategic objectives and poorly empowered public officials considerably hinder the implementation of electronic solutions in public administration. In light of these challenges, the study elaborates a set of recommendations to address them and to embolden decision-makers to implement a genuine reform of the E-Government framework. Further, the study provides additional avenues for research to address encountered limitations and stimulate intellectual reflection on the topic.

Chapter 1 – Literature Review

Over recent decades, the term *E-Government* has become widely dissected within the academic community that describes the use of ICT in public administration. Although during past years the novelty of the concept has been declining, E-Government practices have been part of the societal push to ensure access to digital public services "in a more timely, effective, and cost-efficient method" (Evans and Yen 2006, 207). Through a literature review of scientific and primary sources, the study denotes that the term has been operationalized in multiple ways, encompassing an extensive range of concepts.

1.1 E-Government and E-Service Provision

To begin with, at the core of the concept terminology lies the emphasis on the use of specific mediums to ensure action. Hereby, Henman defines E-Government as the "use of electronic information and communications technology … for the conduct of government" (2010, 3). While this definition captures the opinion of scholars that focus on the technology components employed (see (Bhatnagar 2004, Heeks 2006)), the author considers as well how technology alters the way "we understand and see the world" (Henman 2010, 21). This reflexive stance expands on the narrow outlook that the study of ICT application has on government operations and brings into discussion the often-missed *Foucauldian* implications of changing power relations for both state institutions and non-state actors.

An additional point of reflection for past intellectual endeavours has been the focus on the realms of operation of E-Government. Hereby, Perri 6 (formerly David Ashworth) provides a far-reaching definition that includes four key areas: "e-democracy, e-service provision, e-management and e-governance" (6 2004, 14-15). By doing so, 6's definition presents the concept in line with the efforts to specify the different actors and relations involved in the electronic nexus, including Government to Citizen, Government to Business, etc. (Evans and Yen 2006). Additionally, this focus on e-services and e-management coincides with scholar interests towards government programs designed to counteract risks associated with public services provision, such as anti-corruption initiatives (Elbahnasawy 2014).

Due to the research interest in public administration and service provision, this study focuses primarily on the provision of public e-services to citizens and residents. Considering this dimension, the work of Sá, Rocha, and Pérez Cota conveys the broadest definition of the term, with the authors describing e-services as "the provision of transactions by the online channel"

(2016, 149), most often through a government portal. Alternatively, a branch of the e-government literature, focusing on the role of innovation, defines e-services as "a process of transmission of technology from capital goods sectors to a specific user sector that employs it to supply existing as well as new services" (Arduini, et al. 2010, 258). In between these views, Perri 6 defines e-services as "the delivery of public services over digital networks and media – whether by government bodies or by private bodies under contract or license" (6 2004, 16). Through this definition, one does not limit the responsibility of providing technologically advanced services exclusively to governments and identifies the increasing role of the private sector in governmental affairs in recent decades.

In addition to the views of distinguished academia, leading international organizations have recognized the normative and transformational character of E-Government implementation (Henman 2010, 36-38). Complementing scholar inquiries and providing a framework of comparison for different digital ecosystems, indexes on digital transformation strive to rank and liken distinct state structures from around the globe. The UN DESA's biannual report on the state of E-Government platforms is one such index. Hereby, the report refers to e-service provision as increasing state action efficiency, accountability, and inclusivity, amid the "growing technological capacities to process ever-larger and more complex data" (UN DESA 2020, xxxi). Further, UNPOG actively contributes to comparative data analysis by studying the interconnection between E-Government and Good Governance practices and promoting intellectual endeavours in various regions in the Global South.

For this study, to account for the state of E-Government e-service implementation in Eastern Europe and formulate relevant recommendations, the study refers to the UNPOG's framework of conceptualization of E-Government, which includes as variables of interest the "ICT Infrastructure, Ability to use E-Government, E-Services, and E-Participation" (Lim 2014). Although academia have criticized the UN E-Government Survey and aligned methodologies for focusing too narrowly on e-services provision (Dobrolyubova 2021), in this instance, this serves as an advantage to narrow-down accurately the scope of inquiry.

Notwithstanding the observed consensus on an e-service definition in public administration, it is important to mention that academia and decision-makers have often used the terms E-Governance and E-Government interchangeably. In spite of a linguistic affinity between the concepts and the fact that public institutions often use the term in their trademarks (e.g. Moldova's E-Governance Agency), the concepts carry different programmatic value. If E-

Government refers to the delivery of electronic service and the development of online platforms accessible to the public, E-Governance entangles a wider view on the subject, by assessing the influence that technologies hold on "the practice and administration of governments" (Al Marzooqi, Al Nuaimi and Al Qirim 2017). Thus, while E-Government is concerned primarily with the delivery of electronic solutions to Government practice, E-Governance covers a range of strategy dimensions, including ethical considerations or the end goal of the electronic governance vision itself. Understanding these differences enables us to better visualize the empirical assessment of the study and understand if the source of public administration deficiencies resides in the normative realm or at the technological/implementation layer.

1.2 The Argument in favour of Digital Transformation

The study of digital transformation in the E-Government sector has formulated over time a set of arguments in favour of the transition to primarily e-service provision. At its core, the digital transformation of public services expresses the "change, modernisation effort or innovation … of introducing digital technologies in government's business processes, service delivery models and culture … by restructuring how the government performs basic functions" (Misuraca, et al. 2019, 18). To this, scholars have emphasized the "continuous" nature of such processes, implying that they require "frequent adjustments to external needs" as "a process without an end status" (Mergel, Edelmann and Haug 2019, 10). Considering the E-Government discourse, scholars distinguish over four periods, as seen in Figure 1, which are associated with present technological innovations and with the change of vision towards service provision.
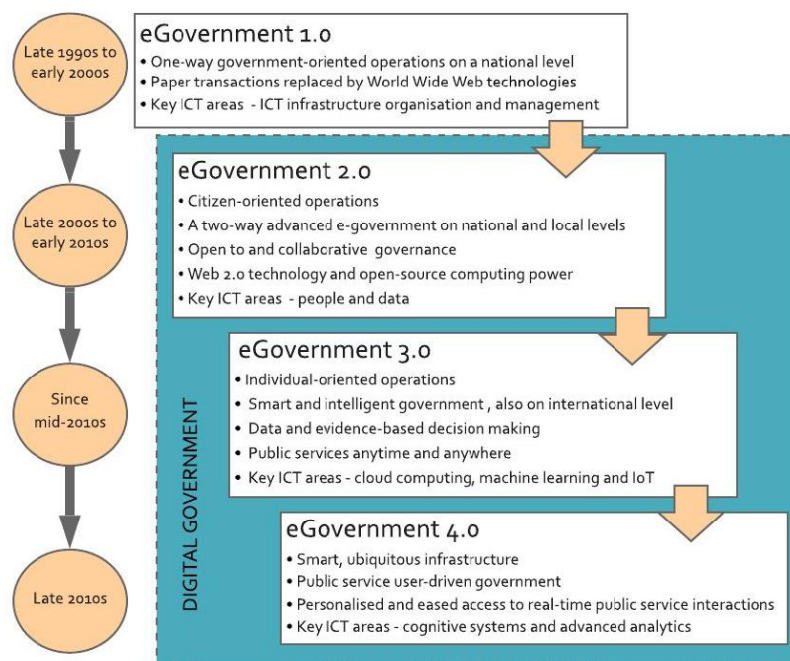

Figure 1. "Evolution of E-Government Discourse". Source: (Misuraca, et al. 2019, 12)

The reasoning in support for digital transformation in public administration maintains that the use of digital innovations reduces incurred costs and human involvement, and enhances the effectiveness, accountability, and privacy dimensions of public services (Misuraca, et al. 2019, 29-32). Towards this, past academic efforts describe vividly through case studies the benefits of digital transformation and digitalization. First, considering public costs, early inquiries in the application of e-services described the role of technology in reducing the number of necessary transactions and the interaction between governments and recipients (Bertot and Jaeger 2008, Henman 2010). Hereby, an analysis of E-Government implementation in Estonia concluded that the use of E-Signature saves the authorities "a sum equal to the 2% of the country's GDP" (Papp-Váry 2018, 100). In addition, the implementation of electronic solutions reduces labour costs in low-level activities and creates high value-added positions. For example, the Estonian X-Road data exchange system is proven to spare "1400 years of working time annually" (Misuraca, et al. 2019, 30) in a country with a population of 1.3 million inhabitants.

Second, the application of an e-services architecture contributes to higher transparency and increased accountability in public service provision. By reducing the role of human intermediaries, the implementation of technology reduces the incentives to engage in rent-seeking behaviour. Hereby, Granger causality testing based on international indexes found that E-Government "reinforces the influence of law enforcement on corruption reduction" (Elbahnasawy 2014, 122) and contributes to higher accountability "by expanding the access to information and raising the level of corruption awareness" (Elbahnasawy 2014, 122). Moreover, privacy enhancements represent another argument in favour of digital public services. The use of blockchain technology in a land registration system in Georgia has successfully enhanced data and identity security and contributed to anti-corruption efforts (Lazuashvili, Norta and Draheim 2019).

In addition, it is important to mention that digital innovation has an active role in governance transformation, citizen empowerment, and stakeholder engagement. Although these aspects are more appropriate for a reflection on the E-Governance dimension, the role of public services is noticeable. The analysis of voting patterns following the introduction of the Estonian "I-Voting" service identified that its use contributed to maintaining and even increasing voting numbers over the past 17 years (Valimised 2022). Further, the use of platforms such as "Today I Decide" and "Osalusveeb" (en. Participatory Web) have served as channels for the government to receive proposals and feedback from residents over legislative proposals

(Vargulis 2021). These initiatives ultimately contribute to "higher service quality and user satisfaction" (Misuraca, et al. 2019, 50).

1.3 Policy Transfer amid Reform Ambitions

The continuous success of e-service application and utilisation in Estonia, ranging from e-taxation, digital signature use, or e-residency, has attracted the attention of other states in learning and adapting successful practices. By 2020, the Estonian e-Governance Academy provided "assistance and consultations to more than 130 countries around the world" (Wright 2020), since its foundation in 2002. Hereby, understanding digital transformation in E-Government as a "comprehensive organizational approach" (Mergel, Edelmann and Haug 2019, 10) requires theoretical insight into how inter-state policy transfer takes place and to which degree.

Towards this point, the often-cited Dolowitz-Marsh continuum indicates the range that policy transfer comprehends, from "lesson drawing (perfect rationality)" up to "coercive transfer (direct imposition)" (2000, 13-14). Moreover, past research mapped the distinctive coercive, mimetic, and normative isomorphisms that describe various mechanisms through which "institutional isomorphic change occurs" (DiMaggio and Powell 1983, 150). These approaches to policy change highlight the different abilities and motives of reformers over the process of change and bring to the forefront the importance of "ownership" in public policy.

Towards the role of change and reform of public e-services, Moldovan scientific literature has recently covered the function of innovations. Although sources have focused on the role of e-Governance in contributing to the well-being of the society (Lazariuc 2020), limited efforts have covered the level of implementation of e-services in Moldova (Grecu, Costaș and Reaboi 2018) or assessed the benefits and challenges of particular e-services (Țurcanu, Popovici and Țurcanu 2020). Furthermore, following the 2021 parliamentary elections and the appointment of the Gavriliță executive, the digital transformation reforms have come at the forefront of the political agenda, with the creation of a Deputy PM position on Digitalization. In addition, the governance program "Moldova Vremurilor Bune" emphasized the need to reorganize public services to be provided "implicitly and primarily electronically" and modernize "at least the 100 most popular public services" (Gavriliță Government 2021).

Nonetheless, despite the desire to embrace innovation and attain digital transformation, policymakers have to consider both the positive and negative implications of the reform course. Primarily, the *digital divide* between the rural and urban populations, as well as the case of

non-digitally literate groups (elderly) and the vibrant Moldovan diaspora (approx. one-third of the total Moldovan population (Cingolani and Vietti 2019)) need to be accounted in the design of new e-services. Further, ethical and security considerations amid regional development (the consequences of the Russian invasion of Ukraine, including cyber-attacks on government infrastructure) reflect the importance of developing a secure digital environment to withstand the risks associated to Moldovan state infrastructure.

Chapter 2 – Research Design. Case Study Analysis

Building on existing findings and wishing to contribute to the study of e-service provision, this paper presents new empirical evidence on the implementation of e-services in Moldova and addresses perceived challenges through the experience of Estonia. Due to the limited academic findings on the topic in Moldova, the study deems additional data collection a core pre-requisite to formulate answers to the inquiry. Thus, the use of a case study methodology as an analytical tool appears well suited for a study of qualitative nature.

2.1 Research Questions

The analysis assesses E-Government implementation in Moldova to shed light on several points of inquiry: exploration of the present state of E-Government implementation concerning e-service provision; assessment of the ICT infrastructure and capacities of the population to access e-services; understanding the ability and resources of public officials to transpose vision in practice; introducing the Estonian experience towards defined challenges. Deriving from the main points of inquiry, the paper answers the following research questions:

How does the implementation of E-Government e-services advance in the Republic of Moldova?

Through which measures implemented by Estonian policymakers can Moldovan officials enhance their existing efforts to address perceived deficiencies and correspond to public demands?

While the study's primary focus is to assess e-services in Moldova, the selection of Estonia as a case of reference was considered after referring to the UN e-Government Survey rankings and literature findings. Further, due to the common post-Soviet independence starting point in the 1990s and negligible differences in terms of country dimensions and population size, Moldova and Estonia share similar historical and political circumstances to evaluate the implementation of E-Government policy in public administration and define solutions to remedy common adversities. In line with the preparation of the research questions and the subsequent data collection process, the author established a series of potential explanations for the inquiries. Based on the UN e-Government index that ranks Moldova on the 79th position globally, with high scores in Open Government and e-Participation sub-indexes among similar developed states (UN DESA 2020), the author assumed that the necessary legislative acts and user platforms to sustain popular interest to electronic practices are present in the country.

Nonetheless, doubts emerged over the usage rates of services due to the limited human capital development in Moldova and few successful information campaigns towards target populations (e.g. diaspora/elderly). These initial considerations before the data collection phase present elements of an abductive theoretical model of analysis, which applies to case-based studies analysis (Beach and Kaas 2020).

2.2 Empirical Strategy. Data Collection

To assess the implementation of e-Government practices in Moldova, the paper employs a qualitative research lens. Hereby, the scope of a qualitative inquiry is to perform "the collection of data in a natural setting sensitive to the people and places under study" (Creswell 2007, 37), with the goal of establishing "patterns or themes" (Creswell 2007) of interest. The written script has the role to convey the "voice of participants, the reflexivity of the researcher and a complex description and interpretation of the problem" (Creswell 2007, 37).

Regarding specific qualitative research strategies, the author uses primarily the exploratory and explanatory approaches. While elements of descriptive, evaluatory, and emancipatory lenses convey the sense of urgency to explore the topic and assess the actions of Moldovan and Estonian officials, the research purpose to explore the phenomenon of E-Government and describe observed patterns prevails. Further, although the study uses elements of conceptualisation of E-Government to locate the scope of inquiry based on the work of scholars and UN officials (Lim 2014, ITU Office for Europe 2021), the study seeks to illustrate the entire phenomena and not limit itself to few variables. Thus, the paper employs an abductive approach that does not limit the researcher to a rigid understanding of the topic and pursues an iterative effort to address ideas that are proven "empirically incorrect" (Tavory and Timmermans 2014, Brinkmann 2014). This bottom-up method, with the study analysing the role of context for individual cases, features elements of interpretive approaches in data collection.

2.2.1 Interview Design. Data Analysis

To collect relevant data and supplement the findings of secondary resources, the study conducts interviews as a primary data collection tool. In general, the use of interviews in data collection practices has been widespread among qualitative research inquiries (Brinkmann 2016). Hereby, the use of semi-structured interviews, with a focus on open-ended questions, is beneficial to capture the voice of stakeholders and identify patterns and themes of interest. By gaining from both the preparation of individualized samples of questions to guide the discussion and from

the pursuit of an active flow of the discussion, the study encompasses elements of doxastic and epistemic interviews. While doxastic interviews bring the focus to investigating the "experience, beliefs, attitudes and feelings of respondents" (Berner-Rodoreda, et al. 2020), elements of epistemic interviews pursue an exchange of ideas and offer "what" and "how" answers as data outcomes (Berner-Rodoreda, et al. 2020, 293).

As a source of information collection on the subject, the author endorsed online interviews. While face-to-face interviews remain the 'golden standard' in academic writing, online interviews represent an efficient tool regarding the time and distance constraints, offering the possibility to reach interviewees across regions and enhance study representativeness. In addition, online communication tools combine the benefits of building rapport through real-time interaction (Deakin and Wakefield 2014) and grant interviewees the choice of engagement to alleviate their concerns over anonymity to reduce ethical inconsistencies. However, downsides exist due to potential lower participation rates due to dropouts and technical concerns over the quality of recorded material. Hereby, academic research on conducting online interviews provided valuable guidelines on the manner to ensure both ethical considerations and high rates of participation. These findings reflect upon the recruitment, sampling, and logistical dimensions and provide advice on how to engage in reflexive discussions (Deakin and Wakefield 2014).

Concerning the selection of interviewees, to convey an authoritative view on the topic, the paper engaged with a purposive sample consisting of stakeholders from Moldova and Estonia. While this non-randomized sample is focused to emphasize field knowledge as a selection criterion, to reach out to several policymakers from governmental institutions, the snowball method was employed additionally, with the author assisted by two interviewees. Overall, the study performed eight online interviews between March and April 2022. The author contacted 12 potential interviewees, with two not answering the call, one politely declining the invitation, and one invitee agreeing initially and afterwards politely recusing their presence citing concerns over their technological understanding of the subject. Hereby, the author concedes the disappointment of not being able to interview an active member of the Moldovan EGA agency, notwithstanding the first-rate findings obtained through discussions with public officials and international experts previously involved in the agency.

Concerning the interviewee sample, it included governmental officials participating in the E-Government/e-services agency provision efforts from Moldova, national and international E-

Government experts, currently and previously involved in state activity on the subject and even joint Moldovan-Estonian e-governance endeavours. Further, the interview process included discussions with an official of the Estonian E-Governance Academy, an academic faculty with research expertise in digital transformation in the region, and three interviews with members of the Moldovan diaspora and Moldovan residents aged 50+ years old. Due to the significant presence of a Moldovan diaspora abroad and a digitally-struggling elderly population, the study focused on the implications of E-Government policy implementation to understand the impact of previous, ongoing and planned initiatives on the every-day life interactions between citizens and state and to assess the citizens' abilities, expectations, and concerns. Thus, this explorative sample supplements the expert and leadership view by offering a voice to those threatened by the negative implications of the "digital divide".

Considering the technical aspects of the interviews, due to the ongoing Russian invasion in Ukraine hindering Moldovan travel possibilities, the study conducted online interviews exclusively. The interviews were conducted in Romanian and English, with regard to accommodating the interviewees. They took place within a platform (Microsoft Teams) agreed upon in advance, and, upon interviewee agreement, were recorded. To avoid potential ethical conflict, for all interviews, the author complied with the relevant data protection regulations, provided necessary explanations and mentions to the participants over the scope of the work and publication form, and answered all points of inquiry. Moreover, at the end of each session, the author requested feedback to improve on potential issues faced by the interviewees.

To attain active discussions, the study designed a list of 15 open-ended interview questions for the expert community and public officials' interviewees. These questions were divided into four thematic categories, focusing on past E-Government policy implementation efforts, present-day challenges, inspiration from Estonia's experience, and the future of e-service provision. Further, relevant questions were prioritized during the discussions to benefit from the experience and expertise of the participants. Concerning the Moldovan diaspora and residents' interviews, a separate list of open-ended questions was prepared to gain insight into the e-service user experience and view on the communication with public authorities, amid the ongoing public consultations to strengthen the digital transformation efforts in Moldova. During all interviews, the author combined the phenomenological inquiry of the subject with a reflexive stance, prioritizing the flow of the debate over a rigid pollster approach, with follow-up thematic questions posed whenever relevant.

Concerning the data analysis process, the study followed to understand and process the details of the cases. With the use of note-taking, selective transcription of interviews, and interviewee-approved video recordings, the study applied thematic analysis as a tool of qualitative data analysis. The purpose of this method is to make valid descriptive or causal inferences through a process of order and comprehension of text. Throughout the analysis, the author implemented a mixture of concept-driven and case data-driven methods of analysis to compare multiple statements by assigning individual responses to groups that reflect common characteristics. These efforts were in line with qualitative content analysis guidelines (Schreier 2014, 171).

Finally, during the data analysis and written production stages, additional secondary data was evaluated to complement the interview findings. These secondary sources presented information about the legal and operational spectrum of e-service provision in the countries and increased the variety of data. Moreover, an further use was to enhance the quality of the interview process, with the in-parallel research providing avenues for discussion over specific reforms. In addition to the documentation associated with the work of public institutions, these secondary data sources included non-scientific reports prepared by local and international non-governmental organisations, with authority on public administration evaluation. While this data may act as a limitation to the validity of the assumptions due to their non-scientific standards of production, in a scarce academic environment as present in Moldova, they provide a substitute that can bolster discussion and increase data diversity.

Chapter 3 – Empirical Findings

This chapter of the study presents the results of the empirical exercise and the interpretation of findings. Following a discussion of the research context, the paper proceeds with the analysis of interview data.

3.1 Research Context

The design and implementation of E-Government infrastructure in public administration in Moldova has been actively taking place since 2004. Between 2004 and 2006, the government adopted a series of foundational acts, including ones concerning electronic documents, digital signature, and the "conception of electronic government" (Costaș, Bolun and Rager 2008, 390). Increased attention towards the application of technology in governmental affairs and the introduction of new e-services occurred at the beginning of the 2010s, with the establishment of the Centre for E-Government (currently EGA) and the approval of an "ambitious strategic program … of e-Transformation in 2011" (Grecu, Costaș and Reaboi 2018, 348).

Following the introduction of these strategic documents, the first e-services platforms and applications themselves were launched between 2011 and 2012, following the introduction of the servicii.gov.md portal (Grecu, Costaș and Reaboi 2018, 351). Afterwards, the introduction of the digital mobile signature, registries of personal data operators, and several business-related applications followed. More importantly, from 2013 onwards the MPay platform for government electronic payments, MCloud governmental platform for public services, and MPass authentication service were introduced and have been since at the backbone of the Moldovan e-service architecture. As of October 2021, the MPay platform alone integrated 86 public services and processed 20 million transactions (UNDP Moldova 2021).

Today, the Moldovan state offers residents 664 public services, of which 137 e-services on the servicii.gov.md platform. Regarding the ICT infrastructure in the country, almost the entire population of Moldova is covered by 4G/LTE broadband cellular network, with actions taken to introduce the 5G technology and "achieve over 100 Mbps for any household in the country by 2030" per the National Development Strategy "Moldova 2030" (ITU Office for Europe 2021, 15). At the same time, with an Internet connectivity rate of 76.1 % of the total population as of 2017 World Bank (ITU Office for Europe 2021, 7) and around 60 % household access to a computer and Internet, the country is above World averages, but significantly below the 82-84 % respective European averages (ITU Office for Europe 2021).

Regarding administrative aspects, following the 2021 government investiture, E-Government and e-service provision are under the portfolio of the newly established Deputy PM on Digitalization office led by Iurie Țurcanu. With vast experience in the creation of the early E-Government architecture and recent tenure as Chief Digital Officer of EGA, Țurcanu's appointment transmitted a sense of urgency and prioritization of the digital transformation processes on the reform agenda. Hereby, the subordinated EGA plays a key role in policy formation to "bring leading technologies into the Government, rethink processes, improve public services and make them work for the benefit of the citizens" (E-Governance Agency n.d.).

In contrast to Moldova, in Estonia, the implementation of E-Government basics started considerably earlier, following the 1994 draft outline of the "Principles of Estonian Information Policy" (e-Estonia n.d.). Learning from its troubled history of Russian occupation, the strategy aimed to solve the socio-political transition challenges with the introduction of IT solutions. In the late 1990s, the first operation of e-services in the work of the government and private actors (banking system) commenced, with the 2000s bringing the first public services in digital format in the case of E-Tax, e-ID, and digital signature (Papp-Váry 2018, e-Estonia n.d.).

Regarding its ICT infrastructure, Estonia has one of the highest penetration rates of digital public services, ranked first globally by the 2021 DESI report. The spread of computerization and of the Internet have been actively promoted to facilitate the development of public services since the late 1990s, with country-wide wireless Internet access launched in 2001 following the establishment of the first "mobile network with data traffic" (Papp-Váry 2018, 98). Hereby, Estonian political administrations played an important role in the popularization of e-services, with public authorities pursuing online Cabinet meetings and banning the Soviet custom of paper documentation use from the late 1990s.

Regarding the administrative dimension, at the heart of the institutional promotion of E-Government and e-services has been the "e-Estonia" movement. Hereby, public-private partnerships with ICT research centres and enterprises give access to the technological innovations required for the digital transformation of the country. Importantly, the confirmation of the leading role of Estonia in digitalization resides in the substantial public support for the use of digital services. According to official data, 99 % of Estonian residents have electronic ID cards, with 70 % using the ID-card regularly (e-Estonia n.d.). According to the same source, 98 % of all tax declarations are completed electronically through the E-Tax Board.

3.2 E-Government and E-Service Implementation in Moldova

When assessing the provision of public e-services in Moldova, the majority of the expert interviewees acknowledged the early 2010s as the cornerstone of E-Government implementation, following the end of the post-Soviet rule of the local Communist Party. In the words of an international consultant with former experience in local E-Government reforms, "*all discussions about e-Government need to start from the essence of democracy ... with it serving as one of the pillars of a governance system that assures an inclusive community*".[1] Two former government employees mentioned that the launch of the first E-Government platforms and e-services were associated with the presence of a group of young policymakers with an ambitious digital transformation agenda, financially supported by international organizations. Hereby, the World Bank "*offered the initial credit for the creation of the Centre for E-Government Agency and funded several South-South exchanges*".[2]

Notwithstanding the effort to conceive a general strategy and establish institutional bodies, a key trait of e-service implementation in Moldova has been the use of project-based initiatives. The idea behind such an approach was to channel available resources into short-term programs to provide rapid solutions to pressing issues. One such example represents the criminal record inquiry service (*e-Cazier*). The online service reached a rate of 90 % of all submitted requests[3], with only the pick-up of the document taking place in person. Another cited example during the interviews is the e-Visa service, launched in 2015. Although designed for foreign applicants, the solution contributed to addressing the issue of the limited presence of Moldovan diplomatic facilities abroad and provided a mechanism of inter-institutional cooperation between state agencies through an electronic medium.

Although through time the use of project-based solutions led to the appearance of more than 137 e-services, this governance approach contributed to several issues within the framework of Moldovan e-service provision. First, the myriad of e-services and registries behind them, although located within a governmental platform (servicii.gov.md), have not been entirely inter-connected, with access to information unavailable in real-time mode. The reasoning behind this stems from the fact that "*the public services inherited were not thought of as digital processes*".[4] An example of deficiencies located in the system architecture represents the

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[1] Interview #1, 21.03.2022. See *Appendix.* for further details.
[2] Interview #1.
[3] Interview #5, 12.04.2022.
[4] Interview #6, 12.04.2022.

limited effectiveness of the unified registry platform (MConnect) to allow the interoperability of the various databases. Moreover, several institutions do not possess modern registries themselves and continue to operate on limited-use databases or even several databases (instead of one platform). For instance, currently, the civil status database is not available in a registry form, which hinders the presence of "*cheap, secure and good quality services*".[5]

Another reason behind this system design failure is the use of outdated systems of operation. Due to the lack of cloud-based systems of registries, the provision of public e-services continues to operate on outdated software (updates unavailable since 2015), while the information displayed is provided through daily batches of data instead of real-time access. This issue is on the priority list of local leadership, with efforts over the past months actively pursuing the digitization of public archives (tens of millions of files) to form crucial registries.

Secondly, important indicators of the success of E-Government implementation in Moldova are the citizen usage rates of public e-services. Available statistics from 2019 estimate that around 15 % of the population currently request public e-services (Emerson and Cenușa 2021, 231). To provide an estimation of the real number of users, the number of holders of digital signatures – from either public or private (telecommunication companies) providers, serves as a genuine proxy. In 2021, the head of the EGA, Olga Tumuruc, assessed the number of users to be around 200 000 citizens ≈ 6 % of total population (Mold-Street 2021). Hereby, interview findings revealed that a big part of these users represent government officials who are requested by law to have one or (even) two e-signatures. The interviews with experts involved in regional projects identified that the usability rate is close to zero in rural areas and the Moldovan diaspora, while higher than average rates are present within the business community.

To explain these daunting statistics, the interviewees referred to the capacity level and limited interest of Moldovan citizens to access e-services, the difficulty to change the population's mentality, and the reduced outreach of official consultation and communication campaigns. During the discussions, interviewed public officials acknowledged the presence of a large group of population lacking digital skills, claiming, "*that the real foundation of a digital society is laid only now*".[6] Regarding the ability to use e-services, though the majority of non-expert interviewees deemed they possess the skills to use the internet, as well as the necessary equipment, all of them recognized their limited awareness of offered e-services except those

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[5] Interview #5.
[6] Interview #5; Interview #6.

often used (e.g. electronic fiscal declaration, electronic application systems for appointments to in-person services). Experts closely associate this reduced awareness with the problem of perception, illustrated by the lack of trust of the population through the preference for physical proof (paper) over digital alternatives. In addition, the respondents emphasized the role of accessibility barriers to specific groups (diaspora), due to the requirement of an active local phone number for the use of an e-signature.

Concerning consultation campaigns, according to the interviewees, between 2011 and 2015, Moldovan authorities were actively involved in discussions with local stakeholders, including civil society, the academic community, and digitally marginalized groups in the development of the e-service system. While the respondents shared limited accounts of present consultations, the information available on EGA resources provides releases on the work with the elderly community, youth, and diaspora over the past year. Hereby, the interviews with the diaspora and adult population pointed out limited awareness of access to said consultations or other diffusion attempts on behalf of authorities.[7]

Third, another source of deficiencies related to the implementation of e-services in public administration originates within Moldovan state institutions themselves. Although the digital transformation agenda received political support from the new government, the interview findings revealed the limitations placed upon the ambitious reformers. Notwithstanding the enthusiasm of the Digitalization Office, the reduced size of the team (which lacks a ministry structure) and the low number of agencies under its supervision does not provide it with the capacity required "*to solve the problem that the country has failed over the past 30 years*".[8]

Moreover, interviewees with experience in public institutions cited the issue of lacking skilled personnel that *"think in these digitalisation parameters and can rethink business processes"*.[9] Although an interviewee denied that his institution faced financial issues, the official acknowledged the difficulty of attracting talent to work in agenda-setting and innovation management, considering that financial compensation in state institutions is *"three times lower one could earn in the private sector"*.[10] In addition, three experts questioned the attitude of junior public officials towards E-Government processes. According to them, this is primarily due to the limited training offered to civil servants, considering that out of 40 000 state

[7] Interview #2, 08.04.2022; Interview #3, 09.04.2022; Interview #4, 10.04.2022.
[8] Interview #5.
[9] Interview #2; Interview #6.
[10] Interview #6.

employees (as of 2018 data) only 200 pass a once-a-year-offered competence course that includes one sub-chapter on electronic governance and service provision.

Moreover, most interviewees cited "ownership" as a missing value within the skillset of public servants. Reflecting on their experiences, former and present state employees emphasized the "*misperception that E-Government is a technical responsibility for the IT colleagues*", "*the fear that the use of electronic solutions would lead to job losses*" and the "*often passed responsibility*"[11] to other state structures (Executive) as reasons behind such an outcome. Moreover, officials are prone to compromise the diffusion of new practices by disregarding their personal role in adopting and promoting e-services. Anecdotal accounts over the officials' misuse of electronic tools infer that their actions damage the public's trust in these services and ponder the legal value of electronic documents.

Finally, all interviewees agreed on the importance of setting a clear strategic agenda for the Moldovan digital transformation efforts. While mentioning the instability in the country caused by recent crises, russian interference in local politics, and lack of continuity in E-Government strategy implementation, the interviews conveyed the need to set general mid-term objectives to guide decision-makers. To this point, the downfall of project-based approaches was asserted, due to the latter's prioritization of grandiose short-term projects, whilst successful E-Government implementation is often sustained through "*small, incremental changes, under non-centralized administration*".[12]

3.3 Policy Recommendations. Estonian Lessons for Moldovan Policymakers

Overall, the interview findings emphasize that notwithstanding the regained political support, respected visionary leaders, and existing financial capabilities, Moldovan reformers face several impediments in the provision of E-Government services. To address these issues, the interviews challenged the sample group to elaborate on the Estonian experience in e-service development. Due to the experience of several interviewees in working in Estonian institutions, as well as in collaborating with state structures on policy transfer, the findings provided data to elaborate several recommendations for Moldovan officials to solve present conundrums.

First, a key reason behind the success of e-Government implementation in Estonia has been the societal push to break from the Soviet past and subsequent vision to become a leading

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[11] Interview #1; Interview #2; Interview #5; Interview #6.
[12] Interview #7, 20.04.2022.

innovator in digital transformation. Hereby, the necessity to reform the entire state bureaucracy came to the aid of authorities, with leading figures such as Lennart Meri and Mart Laar (although lacking an IT background) encouraging the establishment of modern institutions and putting digital transformation on the public agenda in the 1990s. Moreover, through the early attraction of talented individuals, the governmental sector conveyed a reputation of high esteem and led to the pursuit of a "*holistic, multi-dimensional approach*"[13] to e-service development.

In addition to the early adoption of legislative acts, Estonian officials complemented the legal framework with the swift establishment of a unified registry of databases, accessible to all public institutions. Thus, at the base of the Estonian electronic infrastructure stands the X-Road data exchange system that makes online access to 99% of all public services in Estonia a reality. This system assures the application of the *once-only* principle in public administration and reduces bureaucratic barriers and the role of the human factor. Moreover, to build public support for digital solutions, the Estonian government adopted the *digital-by-default* principle, thus, making service interaction available primarily in digital format.

Notwithstanding the lure of innovation, Estonian experts mentioned that the state emphasised "*norms, people, and values*"[14] as a key pillar of the Estonian model of E-Government. This led to the involvement of ordinary Estonians in the development and popularization of e-services, as well as in the establishment of public-private partnerships with the private sector to access technological solutions and enhance the capacity of digitally struggling groups. For instance, several multi-stakeholder consultation bodies regularly involve civil society groups in consultations with public authorities to express their opinion on subjects ranging from consumer rights to cyber-security. Moreover, the country prioritized public access to the internet to every Estonian, while offering computer courses through lifelong learning initiatives and introducing coding in education curriculums. Towards the private system co-optation, the banking sector has been one of the promoters of Estonian innovations. Willing to implement cost-saving innovations, "*Estonian banks contributed with the development of electronic solutions for the public framework*".[15] In addition, these institutions subsidised "bank bus" facilities to visit remote Estonian villages and aid residents in learning to access public e-services.

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[13] Interview #8, 22.04.2022.
[14] Interview #5; Interview #7; Interview #8.
[15] Interview #8.

Importantly, this multi-faceted approach towards E-Government is promoted externally through various policy transfer initiatives (e.g. trainings, workshops) of the Estonian E-Governance Academy. Although interviews denoted the foreign practitioners' interest in copy-pasting local innovations, the majority of respondents argued against such replication in countries such as Moldova, due to the "*different country context*" and the "*necessity to learn as well from the Estonian mistakes*". Hereby, the experience of Estonia and the realization that Moldovan officials pursue an enhancement of E-Government implementation rather than the status quo resemble an opportunity to address observed deficiencies. To support this statement, the study proposes the following recommendations to Moldovan public officials:

Recommendations relevant to the Government's Strategic Vision and Innovations development

To address the inefficiency of current strategic objectives and the limited interoperability of electronic platforms, the Government should initiate a transition from a project-based approach to a national strategy of E-Government implementation and Digital Transformation. Through this, public authorities can assure a unified service design approach by merging the separate platforms. To assure continuity in the reform endeavours, the Digitalization institutions should be separated from the interference of the political factor. In addition, to address the fragmented financial investments in technological innovations and reduce the overlap of multiple donor engagements, the Deputy PM Office on Digitalization could set up an oversight body to monitor the ongoing allocations and reduce the misuse of resources. Importantly, the share of national financing should increase to enhance the level of public "ownership" of innovation.

Concerning the technological dimension, the legislative must adopt required acts to achieve a plenary implementation of the *once-only* principle through the introduction of a national legal equivalent of the Estonian X-Road system. In addition, public officials (including from the Public Services Agency) must join efforts to create a unified national registry of inter-operable platforms with an active prohibition for public officials to request documents that are available in cloud registries. To supplement the introduction of the new digital authentication tool, the executive should prioritize the implementation of the most used ten public services (unavailable in digital format) during the next 6 months. By digitalizing the most-used and less-costly solutions during the first stage (emphasis on business registration and judiciary procedures), the authorities can gradually digitalise most services and avoid the existent trap of expensive projects.

Recommendations relevant to the activity of Public Servants

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To address concerns surrounding the ability of public officials to achieve ambitious targets, the paper recommends the Moldovan Government to pursue a change of mindset in the officials' approach towards ownership of e-service reforms. To achieve this goal, the institutionalization of biannual mandatory digital transformation trainings as part of the curriculum for public servants should occur, including additional courses on change and innovation management. Moreover, the digitalization of the inter-institutional work of public officials, through the introduction of the mandatory use of digital signature would transmit trust to the population to use electronic solutions and contribute to the application of the *digital-by-default* principle. Overall, this mindset change would increase the ownership perception of public servants and eliminate the flawed interpretation of e-services as an exclusively technological issue.

Recommendations relevant to enhancing E-Service use within the Population

Concerning the limited use of e-services among the Moldovan population, learning from the Estonian experience, the governmental authorities need to pursue a multi-dimensional "offensive" on increasing user rates. First, the Government must introduce access by default to digital authentication for all Moldovan citizens, through the diffusion of digital signatures in ID cards. Hereby, the introduction of the "MobiSign" app (free of charge use with enhanced accessibility for Moldovan diaspora) represents a transitory pre-requisite in this direction. In addition, towards the information diffusion efforts, EGA representatives should multiply and streamline their communication and outreach campaigns to communicate with digitally marginalized groups over existing and new services.

Furthermore, the Moldovan Ministry of Education and Research and the Ministry of Labour and Social Protection need to combine efforts to promote lifelong learning practices, with the end goal of changing local habits and mentality by developing digital competences at any moment in ones' life. First, this would require enhancing Moldovan education curriculums through an educational reform supported by the Moldovan Parliament to adapt to the requirements of digital literacy, with emphasis on encouraging creative thinking and innovation development from an early age. Second, additional digital literacy enhancement activities should primarily target the non-digital native groups.

Recommendations relevant to Partnerships with Non-State Institutions

The Estonian experience emphasizes the benefits for Moldovan public stakeholders to involve non-public counterparts in the digital transformation endeavours. Towards this matter, state agencies need to establish complementary formats of interaction with academia (emphasis on

Technical University of Moldova) and practitioners, through a mixture of digital and in-person consultation formats to consolidate their interaction and involvement of said groups. In addition, public-private partnerships with the banking, retail, and telecommunications sectors should be encouraged to outsource non-sensitive innovation conception and provide avenues for mutually beneficial cooperation. Hereby, the private sector must join the government's push to reduce physical documentation use, considering that "*90 % of all public excerpts are requested by notary, banks and other commercial institutions*".[16] Finally, universal coverage with an affordable and good internet connection by telecommunication groups is imperative to access the public e-service infrastructure, considering the limited financial resources available to the average Moldovan resident.

To conclude, the implementation of the proposed recommendations and pre-requisites of a genuine digital transformation will build on the existing political momentum and offer an encompassing vision for e-service implementation. Paraphrasing the words of an interviewee[17], it can prepare Moldova for a long-term marathon effort in digital transformation.

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[16] Interview #6.

[17] Interview #5.

Conclusions

After providing an outlook of the cases, the study elaborates its findings on the state of e-services in Moldova and the potential Estonian lessons to enhance E-Government implementation in the country. Mainly, the research identifies the presence of an emerging e-service framework in Moldova, currently below respective Estonian standards. Based on interview findings, the study deems the extensive use of project-based approaches in Moldova detrimental to achieving an all-encompassing E-Government vision. Through this narrow approach to e-service provision, the issues of limited interoperability of electronic platforms and reduced e-services usage rates, combined with a lack of long-term strategic vision and poorly empowered public officials considerably hinder the responsible use of resources and the successful attainment of set reform targets.

Notwithstanding this grim view when compared to the Estonian digital landscape, Moldova retains an important advantage. The implementation of the pre-requisites defined in the study's recommendations will take place in an environment in which the state can access technologies that Estonia did not possess 10 years ago. Further, despite the delay in the digitalization quest, current political elites have expressed considerable support to the recent push for reforms. Moreover, Moldovan officials appear optimistic to reduce the reform implementation time in half, thanks to the opportunity to skip several technological stages in the process.

Despite these findings, attention must be given to the limitations faced by the study. First, the interviewing process did not succeed in consulting present employees of the EGA – a key institution in E-Government implementation efforts. Second, additional points of critique refer to the limited number of experts interviewed, scarce academic findings on the Moldovan case, or the overall reduced number of case studies analysed. Nonetheless, the study addresses these sources of concern through performing interviews with former and present representatives of the Moldovan state institutions involved in the respective processes, as well as by receiving broad confirmation from different stakeholders for the findings. In addition, the use of non-expert voices offered a counterbalance to the academic nature of the expert interviews to underline the experience and expectations of e-service users, including those from digitally marginalized groups.

Further, throughout the study, potential new avenues for research emerged. Considering the upcoming introduction of a new digital authentication solution and public services (e.g. e-APL), prospective research could test the validity of the findings by investigating the impact

of these new services. In addition, in light of Estonia's commencement of 5th generation e-Government based on AI reengineering, future research can address the implications of *Events-Based Governance* on the provision of public services (automatic services without human interference) and on the ethical considerations of increasing machine control on human life. Hereby, the findings of this study can serve as guidance to evaluate the digital transformation processes in countries similar to Moldova. Such efforts could investigate if patterns observed in the study can be generalized to countries undergoing digital transformation reforms, as well as to raise attention over common-faced impediments in emerging economies.

Finally, it is worth mentioning that the research does not represent only an analytical exercise, but an attempt to contribute to the reform and development processes ongoing in Moldova. Although today, experts conceive that the country will never close the technological gap to Estonia, this does not absolve decision-makers from taking relevant measures to prove the contrary. Therefore, the political class needs to live up to the population's expectations and take risks to guide the country out of the ongoing vicious circle, considering the currently changing political environment in Eastern Europe. Losing this historical moment will represent another missed opportunity in the recent history of the Moldovan state. For this reason, we must act today to secure a better starting point for future generations and make sure that *Events-Based Governance* will not resemble "*rocket science*" but the common-day reality for Estonians and Moldovans alike.

Appendix. Interviews List

Online Interview #1, 21.03.2022. International E-Government expert, previously involved in E-Governance and E-Government policy formation within Moldovan state structures.

Online Interview #2, 08.04.2022. Community lead of the Moldovan diaspora, based in Vienna, previously involved in E-Government reforms implementation in Moldova.

Online Interview #3, 09.04.2022. Moldovan citizen, aged 55 years old, residing in Chişinău.

Online Interview #4, 10.04.2022. Moldovan citizen, aged 53 years old, residing in Chişinău.

Online Interview #5, 12.04.2022. International consultant based in Estonia, actively involved in Moldovan-Estonian E-Government projects at national and local level.

Online Interview #6, 12.04.2022. Top Manager of Moldovan State Agency actively involved in the ongoing E-Government reform design and implementation.

Online Interview #7, 20.04.2022. University Professor based in Vienna, whose research interests include the intersection of digitalization and governance reforms in Eastern Europe.

Online Interview #8, 22.04.2022. Senior expert at the Estonian e-Governance Academy based in Tallinn, with first-hand experience in E-Government policy transfer.

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