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A Model of Public Sector E-Services Development Efficiency as a Sustainable Competitive Advantage

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Abstract: This study aims to explore the links between the efficiency of public sector e-services and sustainable competitive advantage. In line with the emerging approach, the instrumental case study design and the mixed research strategy were used as the most appropriate methodology to answer the general research question that was raised for this study. In this context, we present the positive experience that we have discovered via the Lithuanian case study. A unified model of evaluation of the e-services development system in the public sector was developed. The model explains the application of various e-services development systems methodologies and methods in the public sector and underpins the platform for the interaction of efficiency and sustainable competitive advantage processes. The model developed helps to make the assessment of e-services more effective and demonstrates a personalised outcome that can be applied by other public sector organisations. The paper discusses the efficiency trends in the development of e-services in the public sector in order to achieve Sustainable Development Goals, as well as distinguishes and highlights procedural steps that help to improve the development of e-services and sustainable competitive advantage.

Keywords: efficiency of e-service; public sector; sustainable competitive; advantage; model; Lithuania

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1. Introduction

As the public sector increasingly transitions to the digital age and makes effective use of information technology innovations, a systematic conceptual approach and assessment is necessary to discuss in order to realise its potential at the strategic level of the sector. Introduction should briefly place the study in a broad context and highlight why it is important. It should define the purpose of the work and its significance. E-services in the public sector are becoming the most important lever to create value for the organisation's interaction with its ecosystem (Sklyar et al. 2019), which in turn increases the efficiency of the organisation's activities in a sustainable way and in operational processes and permanent changes (Alotaibi 2020; Khanra and Joseph 2019; Yadav et al. 2019; Alkheyi et al. 2020). Thus, how to improve the capacity for e-service efficiency in the public sector in such an unpredictable environment has become a focus for the sector (Khalifa 2020; Myo et al. 2019; Khanra and Joseph 2020; Dhaoui 2019), and the application of best-practice principles on the design and delivery of public services in the digital age is becoming of paramount importance (EU Public Governance Directorate, 2022/OECD Public Governance Policy Papers, No. 23). The document sets out nine Principles of Good Practice under three pillars of "Build accessible, ethical and equitable public services that prioritise user needs, rather than government needs"; "Deliver with impact, at scale and with pace"; and "Be accountable and transparent in the design and delivery of public services to reinforce and strengthen public trust" (p. 3).

The global crisis caused by the COVID-19 pandemic has further highlighted the significance of this social phenomenon. The pandemic has shown that a well-functioning public sector and making the management system more efficient are essential prerequisites for a

proper response to such a crisis. Moreover, the pandemic has highlighted the importance of strong public institutions and effective partnerships between governments and other key actors, which are also essential for achieving sustainable performance goals. As a result, the leaders of the public sector are concentrating on the development of e-services to help the community with the rapidly changing environment and create competitive advantages (Adnan et al. 2022; Alvarenga et al. 2020).

When discussing the area of public sector efficiency and competitiveness (Lozano and Garcia 2020; Meuleman 2021; Dhaoui 2021; Droege et al. 2021; Kretschmer and Khashabi 2020; Coreynen et al. 2020; Gebauer et al. 2020; Sjödin et al. 2020), significant deficiencies in effective management and administration are noted.

According to Abubakar et al. (2019), the administration of a sustainable public sector requires that public sector managers have sufficient knowledge based on experience and formal training to make knowledge-based decisions. However, knowledge of how to improve e-services in the public sector to achieve the interplay between efficiency and sustainable competitive advantages is still limited. The focus is on the implementation of sustainability as a public policy or policy area rather than the level of operational efficiency and performance of the institution(s). It is also worth agreeing with Harald and Norman (2021), who point out that the sustainability of public administration at national and sub-national levels has rarely been addressed. Thus, there is a lack of knowledge on how to initiate, implement and institutionalise sustainability-related organisational change in digital practice. The resource-based approach emphasises the need for the public sector to acquire differentiated managerial resources in order to maintain a competitive advantage.

In summary, digital capabilities have become an important way for public sector organisations to maintain competitive advantage and increase resilience. However, there is a lack of applied research on public sector e-services to assess how to enable digital technologies and effective governance via innovative solutions in the context of a country's sustainable development strategy. On the other hand, at a theoretical level, there is a lack of knowledge in modelling how to integrate sustainable development objectives into an organisation's strategy that supports investments in sustainable public administration and human skills, sustainable society and governance. The most effective way of filling this gap could be via the application of a unified e-services model.

Our study seeks to explore how to enable the public sector to use digital capabilities to increase the sector's efficiency, competitive advantage and resilience in order to propose a model. For this reason, the study investigates the following research question (RQ), that is: *How should public sector organisations in e-services reflect the goals of sustainable development in implementing the sector's sustainability strategy, which allows to increase the efficiency and competitive advantage of the public sector in order to build a model?*

To address this question, this study focuses on the following objectives and analytical positions: (1) to reveal the development and benefits of e-services in the public sector; (2) to discuss the most effective e-services, which ensure the quality of this sector; (3) to point out the weaknesses in the efficiency of e-services; (4) to identify the areas of improvement in the system of e-services and to suggest the new opportunities.

The paper is structured as follows: Section 1 is the introduction; Section 2 examines the conceptual framework and presents theoretical approaches to e-services phenomena in the public sector; Section 3 introduces the methodology and research design; Section 4 presents empirical results and main findings: a unified e-service model application. This is followed by a discussion and conclusions.

2. Theoretical Foundations for the Effective Integration of Electronic Services in the Public Sector

2.1. Prerequisites for the Development of Electronic Services

The issue of the concept of e-services has been addressed in the scientific literature for more than a decade, but in a dynamic environment, the phenomenon of e-services is being discovered in a new way and its conception is changing. As stated by Afarjanc (2019), it is

important to consider the fact that the e-service is an object of management that manifests itself in a multi-disciplinary environment and is influenced both by the rapid advancement and radical innovation that emerges in the technological environment, as well as by new management challenges and theories. The concept of e-service is closely linked to the original term of the service itself, except that it is used very widely and is often applied to any electronic communication in the field of public e-services, in particular between government and society (Jansen and Olnes 2016). Authors (Chaffey 2007; Cruz et al. 2020) associate the use of IT with the development of customer relationships and their satisfaction with the services provided. The rapid development of IT is changing the social, cultural and political features of society. This creates a new market for e-business and e-services. While the concept of e-services is multi-faceted, different scientists make a general statement that e-services are associated with the use, accessibility and user-friendliness of information and communication technologies for both citizens and organisations, in order to improve the efficiency and development of e-services and the content of the service itself (Prati et al. 2003; De Ruyter et al. 2001; Featherman and Pavlou 2003; Garson 2006; Rowley 2006; Jansen and Olnes 2016). Some scholars have suggested various aspects of e-services: the main advantages of e-services (Shpak et al. 2022; Thanh et al. 2019), increasing the involvement of citizens and economic actors in specific administrative activities and processes; cutting red tape (Revyakin 2019; Barabashev 2016) and its costs (Shevyakova et al. 2023).

Considering the concept e-services provided by public organisations are called public services. Jansen and Olnes (2016) argue that public e-services can be understood as digital interaction between government and end-user, which gives a certain value to the general public. Public sector services are a very important area in which local self-government solutions are active, requiring consumer confidence and satisfaction. Therefore, the main role of e-government can be highlighted: to distribute government services and information to citizens (Malodia et al. 2021; Bannister and Connolly 2020); to increase the efficiency of the distribution of services in the public sector (Singh and Sahu 2021). According to Dwivedi et al. (2021), e-Government is the use of communication technologies and information in power to deliver public services, increase administrative efficiency, as well as to validate the value of democracy. Moreover, researchers have investigated the impact of digital capabilities on innovation processes (Duan et al. 2019; Choi and Chandler 2020). It can be stated that digital capability is the key element with which organisations can obtain sustainable competitive advantages in the digital age, it is extremely important for the survival and development of new ventures and the transformation and development of traditional organisations (Jean et al. 2020).

It should be stressed that one of the conditions for the sustainable development of the public e-services sector is adequate and effective regulation of the sector and a comprehensive legal framework. Directive (EU) 2015/1535 of the European Parliament and of the European Council of 9 September 2015 lays down the procedure for the provision of information in the field of technical regulations and rules on Information Society Services and sets out the features specific to the service (see Figure 1). While expanding the discussion, it should be noted, that the widespread, rapid and extensive development of digital service platforms, as well as debates on public data spaces and new technologies such as artificial intelligence, affect all areas of society.

It should be noted that the main legal challenge is to make public services accessible, understandable, functional and reliable. The European digital agenda (Digital Agenda for Europe | Fact Sheets on the European Union | European Parliament (europa.eu)) for the decade 2020–2030 addresses these issues by focusing on creating secure digital spaces and services, creating a level playing field in digital markets with large platforms and strengthening Europe's digital sovereignty while contributing to the European goal of climate neutrality by 2050. The Digital Europe programme established by Regulation (EU) 2021/694, is a new EU funding programme for digital technology with a planned overall budget of EUR 7.5 billion for the 2021–2027 period that will provide strategic funding to support projects. The digital education action plan (2021–2027) is a renewed EU

policy initiative to support the sustainable and effective adaptation of the educational and training systems of EU Member States to the digital age. To achieve these objectives, the action plan sets out two priority areas: fostering the development of a high-performing digital education ecosystem and enhancing digital skills and competences for digital transformation. On 9 March 2021, the EU proposed a digital compass (COM(2021)0118) with four digital targets to be achieved by 2030, with a key focus on public e-services, requiring that all basic public services should be available online; and all citizens would have access to their electronic medical records and 80% of citizens would use an electronic identity solution. The document, "Public Administration Reform in Europe: Conclusions, lessons learned and recommendations for future EU policy" (2018), sets out the main recommendations. It is important to know, that the long-term strategic goals and objectives for the planning and development of e-services in the Lithuanian public sector, as outlined in the National Progress Programme (2021–2030) and Guidelines for 2050. It can be stated the legal documents reflect the challenges facing the public sector.

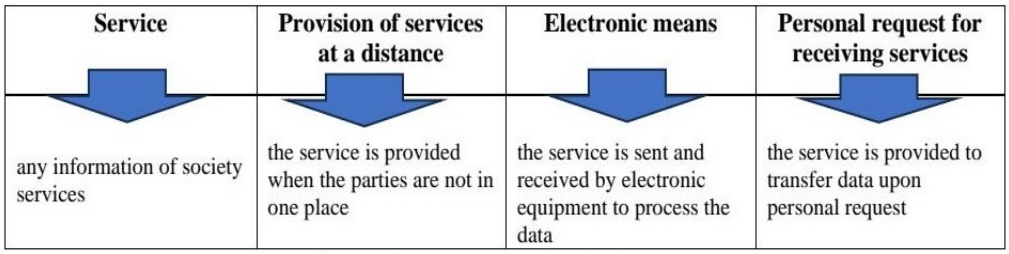


Figure 1. Features specific to the e-service. Source: created by the authors on the basis of the Directive (EU) 2015/1535 of the European Parliament and the European Council.

Some researchers (Agger and Sorensen 2016; McNab 2009; Pollitt and Bouckaert 2011) note that the lack of flexibility and creativity in public sector systems and bureaucratic organisational culture leads to resistance to the implementation of change strategies. It should be stressed that the success dimension of e-services depends on organisational structure, decision-making, and perception of the quality of the system. Some scholars discussed various dimensions of e-services in the public sector, such as links between innovation and organisational performance (Bowen et al. 2010; Ryan and Tipu 2013; Laita and Belaissaoui 2017; Lopes and Farias 2022; Androniceanu and Georgescu 2021; Rosário and Dias 2022), technological innovation in enabling digital platform openness for modern information societies: drivers, dimensions and outcomes (Ochara and Mawela 2015; Broekhuizen et al. 2021; Nasser et al. 2022), technology-based leadership as an integral part of public sector organisations (Contreras et al. 2020; Sundberg 2019; Reascos et al. 2019), talent management and performance in the public sector (EU Public Governance Directorate, 2021/OECD, 2021, "The OECD Framework for digital talent and skills in the public sector", No. 45; Kravariti et al. 2023). Attention should be paid to other assumptions for the development of e-services in the public sector: new human resources competencies and skills (Ranzatti et al. 2019); value delivery process (Kassen 2019; Lewandowsky et al. 2020), artificial intelligence and big data in e-Government services (Anshari and Lim 2017; Hasnat 2018; Desouza and Jacob 2017; Gillingham and Graham 2016; Pencheva et al. 2020; Santiago and Smith 2019; Berryhill et al. 2019; Androutsopoulou et al. 2019; Rakšnys et al. 2021), digital literacy and cybersecurity (Hallstedt et al. 2020; Bailey and Osei-Bryson 2018; Ziemba 2020), quality of satisfaction of e-services (Bhuvana and Vasantha 2020; Terziu 2020; Dobrolyubova et al. 2019), trust as an important factor influencing the success of the development of e-services (Andronie et al. 2021; Pinem et al. 2018; Abu-Shanab 2019;), transparency of public management activities (Misuraca et al. 2020) and responsibility (Canning 2020; Lobschata et al. 2021), and involvement of citizens in governance (Dobrolyubova et al. 2019).

2.2. Factors Affecting Competitive Advantage in the Context of Sustainable Development

The elements of the new public governance are directly linked to public e-services efficiency: innovative, sustainable and targeted use of digital tools in public sector organisations. Digital transformation of the public sector is beneficial because these processes increase cost-effectiveness (Hallstedt et al. 2020). In addition, the use of digital technologies also opens perspectives for better monitoring of service delivery activities and optimisation of service use (Ren et al. 2018). Digitisation improves the quality of e-services provided to citizens and increases the openness, transparency and efficiency of public institutions. Digital inclusion and societal needs are characterised by close synergies: public organisations strive to respond to uncertainty and complexity in today's global environment (Borg and Smith 2018; Holgersson et al. 2019; Collings et al. 2019); actors in the innovation ecosystem and digital inclusion (Granstrand and Holgersson 2020; Manžuch and Macevičiūtė 2020); and the relationship between organisational resilience and organisational learning (Evenseth et al. 2022).

According to Marques et al. (2021), public administration is based on meeting two needs: society requires a creative, flexible approach to innovation, and economic tensions and budget cuts force the use of models geared towards efficiency, competitiveness and cost savings. It can be stated that the new organisational framework for public management integrates creativity, innovation and flexibility to achieve sustainability and create value for society. Other researchers (Lozano et al. 2021) pointed out that the "Organisational Sustainable Collaboration" framework depends on the drivers, benefits and challenges of collaboration, which can help organisations to understand and better collaborate in order to maximise the benefits and reduce the challenges. This is the basis for ensuring synergies between citizens and the state in the pursuit of the public sector's sustainable development goals (Meuleman 2021; Eggers 2020): four priority areas for e-government have been identified: the quality of the public sector (quality plans and strategies; resources, skills and competences; mobility and mindset; organisational culture); a mission-oriented public sector; and governance reform, involving both horizontal and vertical coordination and cooperation. Another important factor affecting competitive advantage in the context of sustainable development is expectations for the quality of public e-services are raised in order to establish a user-centred model in service provision by instinctively exploiting the potential created by technology throughout the public management cycle and processes (Kern et al. 2019; Tarnovskaya 2023). The competitiveness of the country can be achieved by building the strategic competitiveness of each public organisation (Pangarso et al. 2020a; 2020b; Global Competitiveness Report Special Edition 2020 World Economic Forum 2020). According to Safiullin and Akhmetshin (2019), digital transformation improves the efficiency of the organisation and reduces costs by providing more flexible services. Finally, it provides a strategy that aims to create and enrich competitive value and create a sustainable innovation culture (Norton et al. 2020; Mahlow and Hediger 2019; Marti et al. 2023).

It can be noted there is a direct link between competitive advantage and sustainable development. As Jacob et al. (2021) argue, in order to make this link, public administrations need to be prepared to implement transformational policies, organisational learning and sustainable development education, i.e., to enable transformational literacy. To strengthen this reflection, Domingues et al. (2017) discuss reporting in public sector organisations: exploring the links between the reporting process and organisational change management with sustainability. As noted by various authors (Hughes et al. 2021), three interrelated and sustainable environments are highlighted: (1) people (sustainable thinking), (2) environments (developing strategic plans, integrating different cultures) and (3) tools (applying methods, processes, systems and procedures to increase efficiency, quality, safety and overall satisfaction). These environments are important for the implementation of efficient operation from a strategic point of view; to achieve competitive advantages; increasing quality, efficiency and overall satisfaction by enabling sustainable thinking. Bellandi et al. (2021) describe sustainability as integrating economic viability, environmental strength and social justice to build resilient, diverse and prosperous communities, present and

future. Sustainable practices should ensure satisfactory results for the environment and the world's population while promoting the economic and social needs of current and future generations (Avila-Gutierrez et al. 2020).

The ability to respond to today's needs and to adapt to new challenges is becoming a permanent feature of the public sector. The Organisation for Economic Co-operation and Development (OECD) (20 has identified the essential characteristics of a professional, strategic and innovative public sector. Based on these considerations, a Logical matrix for sustainable development policy in the public sector has been developed (illustrated in Figure 2).

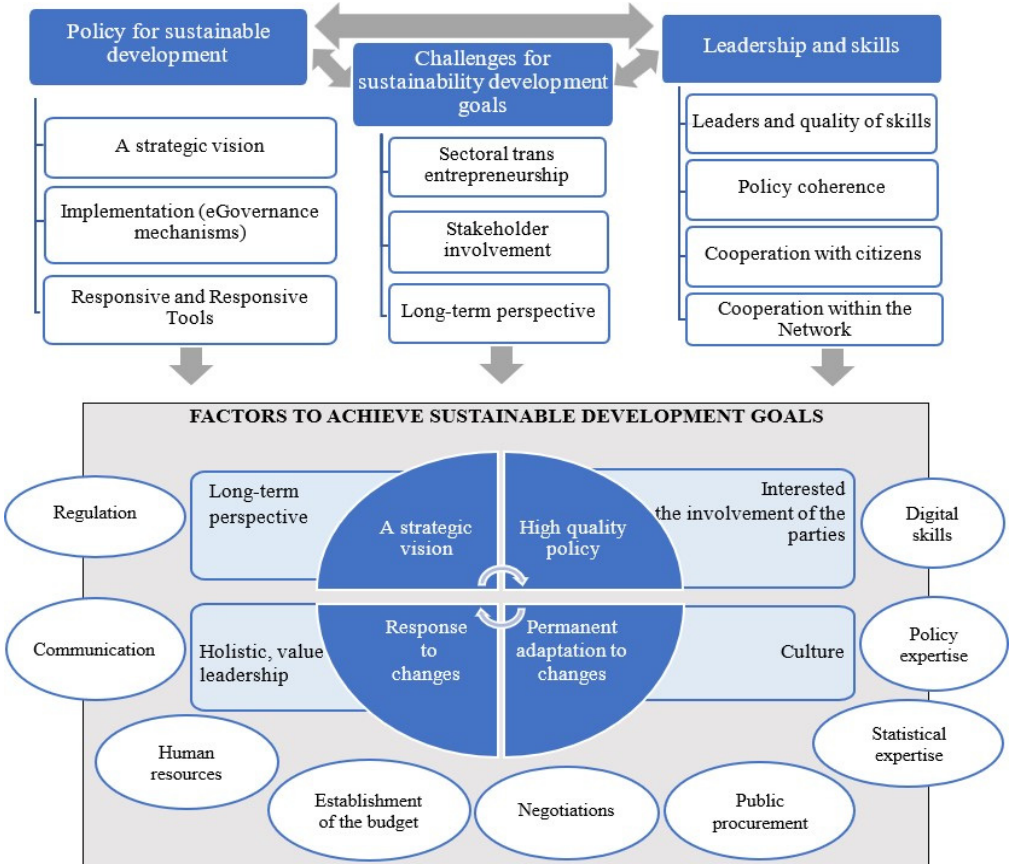


Figure 2. Logical matrix for sustainable development policy in the public sector. Source: Authors representation.

The logic matrix shows that capacity building and evidence-based decision-making for public sector staff is the basis for effective leadership and sound policy-making in the future. Moreover, in cooperation with public authorities and citizens, the improvement in the e-services efficiency model can lead to a unified e-services efficiency model that meets the characteristics of all services and meets the standards of this set of services when implementing the principle of e-services as a one-stop shop (Ansell and Trondal 2018). Therefore, e-Government gateways should not only be a set of links to different e-public services but should be a single, standardised system capable of integrating the services provided by public authorities into the electronic space. On the other hand, a lack of technical competence among public sector leaders can inhibit leaders' ability to make effective and innovative solutions. The emergence of sustainable public sector administration requires that public sector managers have sufficient knowledge based on experience and formal training (Abubakar et al. 2019; Banks et al. 2021) to make expert-based decisions and correct inappropriate decisions (Krpálek et al. 2021). Organisational

culture is an important factor that influences sustainability and effectiveness which is a key driver of innovation.

It has been found that proper, timely, innovative, sustainable and conscious implementation of e-services in public institutions correlates with an increase in the efficiency of public administration. It highlights that for traditional public sector organisations, digital reinvention means a fundamental rethinking of strategy, operations, technology and human resource management, and for successful organisations, it means a search for a new strategic orientation, the development of digital competences, a holistic approach to services, processes, redefining the experience of customers and users, and the creation of new ways of delivering services.

Also, should be noted that the service design models presented in the academic literature highlight the important role of effective service in the development of sustainable and secure e-services: they discuss the sequence of e-services delivery and suggest appropriate plans for strategy implementation and responsiveness to change. The sustainable e-service quality model developed by Stamenkov and Dika (2015) explains effective prerequisites for the development of e-services in the public sector in order to avoid unrealised expectations of both the user and the service provider. Aslanova and Kulichina (2020) discuss digital business strategy and construct a digital maturity model, which identifies 5 maturity levels. Other researchers (Matarazzo et al. 2021) conclude that the highestlevel covers most of the attributes of smart public governance that can be achieved via the use of IT in all processes. This has a positive impact on the acquisition of sustainable competitive advantage, which provides theoretical support for the development of cross-border behaviour along with practical decision-making. With the help of an ISO Quality Model, the role of satisfaction mediation/modification in service quality and loyalty relationships is confirmed, but, according to Matarazzo et al. (2021), is to be considered the ISO 9001 certificate does not seem to affect customers' perception of the quality of e-services. The SPRINT model can be applied in the public sector and its application is directly linked to the ability to ensure the efficiency of the e-services provided (Verhoef et al. 2021). Malodia et al. (2021) propose the use of a Digital Inclusion Model to explain the effectiveness of e-services in the public sector. This model covers all stakeholders: governmental, municipal and public sector organisations; business organisations; institutions of higher education and scientific research; community organisations, non-governmental organisations (referred to as "NGOs") and individual members where the collaboration of all stakeholders would be considered as a key factor in promoting digital inclusion.

In sum, the proposed models do not reflect individual and organisational responsibility, and knowledge of how to improve e-services in the public sector in order to achieve synergies for efficiency and sustainable competitive advantage is still limited. A new model should be constructed in order to make open innovation an integral part of public sector value creation rather than service delivery. For this reason, an empirical study is being carried out to highlight the new conceptual framework; and to develop a unified model explaining the links between the effectiveness of public e-services and sustainable competitive advantage.

3. Methodology—Research Design—Methods

3.1. Justification of the Expediency of the Research

Analysis of scientific literature (Safiullin and Akhmetshin 2019; Norton et al. 2020; Mahlow and Hediger 2019; Dobrolyubova et al. 2019; Misuraca et al. 2020; Hallstedt et al. 2020; Ren et al. 2018; Avila-Gutierrez et al. 2020) revealed that proper, timely, innovative, sustainable and conscious implementation of e-services in public institutions correlates with the increase in the efficiency of public administration. Authors (Solechan 2021; Moonti 2019; Ansell and Trondal 2018; Herasymiuk et al. 2020) support the idea that the public sector's main determinants of the ability to change management and working styles are people and their competences, processes and internal procedures, organisational structure and leadership. Also, it should be noted, that for traditional public sector organisations,

a digital invention involves a fundamental rethink of strategy, operations, technology, and human resource management, and to be successful, organisations should seek a new strategic focus, develop digital competencies with a holistic approach to services, processes, redefine customer and user experiences, and create new ways of working (identify, retain, and develop the right talents to create and sustain a digital organisation). The theoretical framework presented above formed the conceptual basis of our research.

The area of the research problem and main research question allows us to analyse, how should e-services public sector organisations reflect on the objectives of sustainable development by implementing a sustainability strategy for the sector, which would make it possible to increase the efficiency and competitive advantage of the public sector?

Reflecting on the main research question, the aim of the research is to investigate the implementation of e-services and development possibilities at the Environmental Project Management Agency of the Ministry of Environment of the Republic of Lithuania and to provide possible directions for the improvement in the development of e-services in the public sector by constructing a systemic model.

Following the emergent approach, for empirical justification of the social phenomenon analysed, a mixed research was conducted using a quantitative research strategy (analysis of secondary statistical data; t to illustrate the current situation and main stages of development of e-services in the public sector in Lithuania and to outline trends in efficiency; and a qualitative research strategy using an instrumental case study (Stake 2005) as an illustrative problem field (Creswell 2007) of the Environmental Project Management Agency under the Ministry of the Environment of the Republic of Lithuania; and content analysis of strategic documents and reports of the Agency, even social media sources relevant to the topic at hand were also analysed to highlight the situation of e-services development; and semi-structured interviews on the options of experts on e-services development in public sector and their attitudes towards effectiveness in this process.

Purposive sampling as a non-probability sampling strategy was applied to find a public sector organisation that can serve as an example that contributes to the creation of a responsible innovation policy in the ecosystem; effectively delivers e-services and demonstrates sustainable competitive advantage in the sector according to three qualitative criteria: is currently the strongest in terms of sustainability in the following areas; has twenty years of experience in the administration of EU environmental projects, has many years of experience in the management of Lithuanian environmental investments; demonstrates successful administration of new tools and has an impeccable reputation. Content analysis of the strategic documents of the Agency highlighted the main strategic goals of the activities for 2023–2030. The first—respond to the quality of public administration and governance; the second—create a motivating work environment in order to achieve higher value for customers, attract new funding sources and spread the good experience of Lithuania.

The Environmental Project Management Agency of the Ministry of Environment of the Republic of Lithuania (known as the APVA) is a state budgetary institution established by Order No 579 of the Minister for the Environment on 6 December 2001. The rights and duties of the owner of the Environmental Project Management Agency shall be implemented by the Ministry of Environment of the Republic of Lithuania. A one-stop-shop centre of excellence was set up a few years ago, bringing together two bodies under the Ministry and performing essentially the same functions, the Environmental Project Management Agency and the Housing Energy Savings Agency, which currently employs 176 staff. The operational objective of the Agency shall be to: coordinate and manage financial support measures for both energy efficiency and climate change mitigation, to exploit all existing and expected benefits of the future IT and e-sector, and to quickly and efficiently organise the administration of new measures so that citizens have access to all services and information via the Internet. The Agency cooperates with other agencies in order to create innovative future environmental initiatives for companies and customers throughout Lithuania.

Therefore, it can be said that the Agency highly represents the public sector in Lithuania and this allows us to draw general conclusions.

3.2. Data Sources

In order to complete the methodology of this study, a detailed research instrumentation was drawn up on the basis of six criteria, which are empirically verified by enabling seventeen indicators (presented in Table 1).

Table 1. The research instrumentation (Source: Authors representation).

Research Criteria (1–6)	Research Indicators (1–17)	Methods
Development and benefits of e-services in the public sector	(1) discussion on a common understanding of the interlocutors' deployment of e-services in the public sector, the applicability of legislation, the approach and the situation related to operational changes; (2) discussion of perceived utility, efficiency, ease of use and intention to use; (3) discussion that justifies the efficiency of e-services as a competitive advantage.	Analysis of scientific literature; Analysis of secondary statistical data; Case study; Analysis of strategic documents. Semi-structured interview.
E-services in the public sector ensuring high-quality processes	The aim is to assess the following: (1) the development of legislation and strategies in the field of e-services; (2) information technology level in the organisation (available IS, technical base); (3) staff competence in e-services (computer literacy, use of IS); (4) the importance of cooperation; (5) personnel policy; (6) anticipating the main obstacles and their pathways.	
Disadvantages in the efficiency of e-services in the public sector	Particular attention shall be paid to the problems of assessing public services from the consumer's point of view, which have emerged during interviews.	
Areas for improving e-services in the public sector	(1) discussion on the main problems of improving the system of public e-services organised by the institution; (2) discussion on the need for changes and the orientations for modernisation to be achieved.	
Social characteristics of informants	(1) areas of responsibility; (2) experiences by position (years).	
Verification of the model	A model for assessing the current development of e-services in the public sector shall be constructed and its significance verified: (1) systematic analysis of e-services development as a sustainable competitive advantage: justification of structural elements and interactions; (2) justification of the practical significance of the evaluation model developed.	

4. Data Analysis

4.1. Analysis of Secondary Statistical Data

The analysis reveals that a significant part of the services provided by public administration entities are provided by electronic means. The European Commission's annual Digital Economy and Society Index (DESI) shows the effectiveness of digitalisation of the Lithuanian public sector and the development potential of digitalization, based on 4 main indicators: human capital; integration of digital technologies; digital public services; availability of e-communications (access via the Internet: https://digital-strategy.ec.europa.eu/en/policies/desi, accessed on 25 November 2023). Lithuania's position in the Digital and Society Index in 2022 does not fall below the EU average and Lithuania ranks 14th among the EU-27. Besides, Lithuania is among the leading EU countries that have developed the most technologically advanced public e-services and ranks 10th among the 27 EU countries on integration of digital technologies (ranks 13rd in the EU-27). Looking at statistical indicators that reflect the use of e-services by the population in public sector institutions, a growing trend in the delivery of e-services can be seen: In 2022, 61.5% of institutions provided services via the electronic government gateway (42.1% in 2018; 55.30% in 2020), 100% by e-mail, 53.8%—information services were provided via social networks (e.g., Facebook), 11.8%. Internet telephone, and 8.7%—mobile apps.

As indicated in the Population and e-Government portal of Lithuania, 2022 (access via the Internet: http://statistika.ivpk.lt/saltiniai, accessed on 25 November 2023) the quality of the services provided by the e-Government portal is appreciated by users well and excellent, which influences the growth of the number of users. In 2022, the public rated 7 points (out of 10) for the presentation of information on the e-government portal; the usefulness of the information is assessed by 8 points; the clarity of the content is assessed by 8 points. Public opinion on the evaluation of the work of state and municipal bodies is important. Over the past five years, trust in state and municipal institutions has increased from 51% to 65%. The analysis has shown that Lithuania is making progress in the provision of digital public services in order to make services more efficient, more accessible to the public and more user-friendly. The trend in growth in the number of businesses and members of the public using e-services suggests that the importance of e-services will only continue to grow and will be of increasing importance for public sector organisations.

In summary, Lithuania has made significant progress in digitization but is still struggling to address gaps in digital skills, digital transformation and the deployment of advanced 5G networks.

4.2. Analysis of Semi-Structured Interview

The data obtained from the instrumental case study by analysing strategic documents were verified via the method of a semi-structured interview, which triangulated the information, i.e., it allowed us to verify it. Primary sources included a semi-structured directed interview ($N = 6$) with the experts of the Agency, who envisioned and implemented changes in the organisation in the context of improving e-services. Key criteria: have held a senior position in the Environment Project Management Agency for at least five years; have direct responsibility at strategic and implementation levels; are the most knowledgeable at the technological level of operations and are best placed to provide up-to-date information on the delivery of e-services.

The main dimension of the interview focused on the areas of interaction of e-services development and efficiency in the public sector in order to strengthen the implementation of a sustainable competitive advantage approach in ecosystems. Based on this dimension, the interview was structured according to 4 scenarios. The interview protocol was developed by following 17 open-ended questions, which were formulated with reference to the concepts discussed in the article. In accordance with the ethics standards, the research anonymises the names of participants, thus identifying them as experts and codified as Informants *(I)*. All interviews were conducted within one month (January–February 2023); during

individual meetings, face-to-face; and lasted from one hour to an hour and a half. Experts were invited to discuss their experiences regarding how they were introduced to the change initiative in the public sector organisations, their role, activities and experience. The audio-recorded interviews were transcribed verbatim allowing analysis of the transcripts. All informants were asked to review the findings and to provide comments.

The Logical matrix of a semi-structured interview was drawn (see Figure 3).

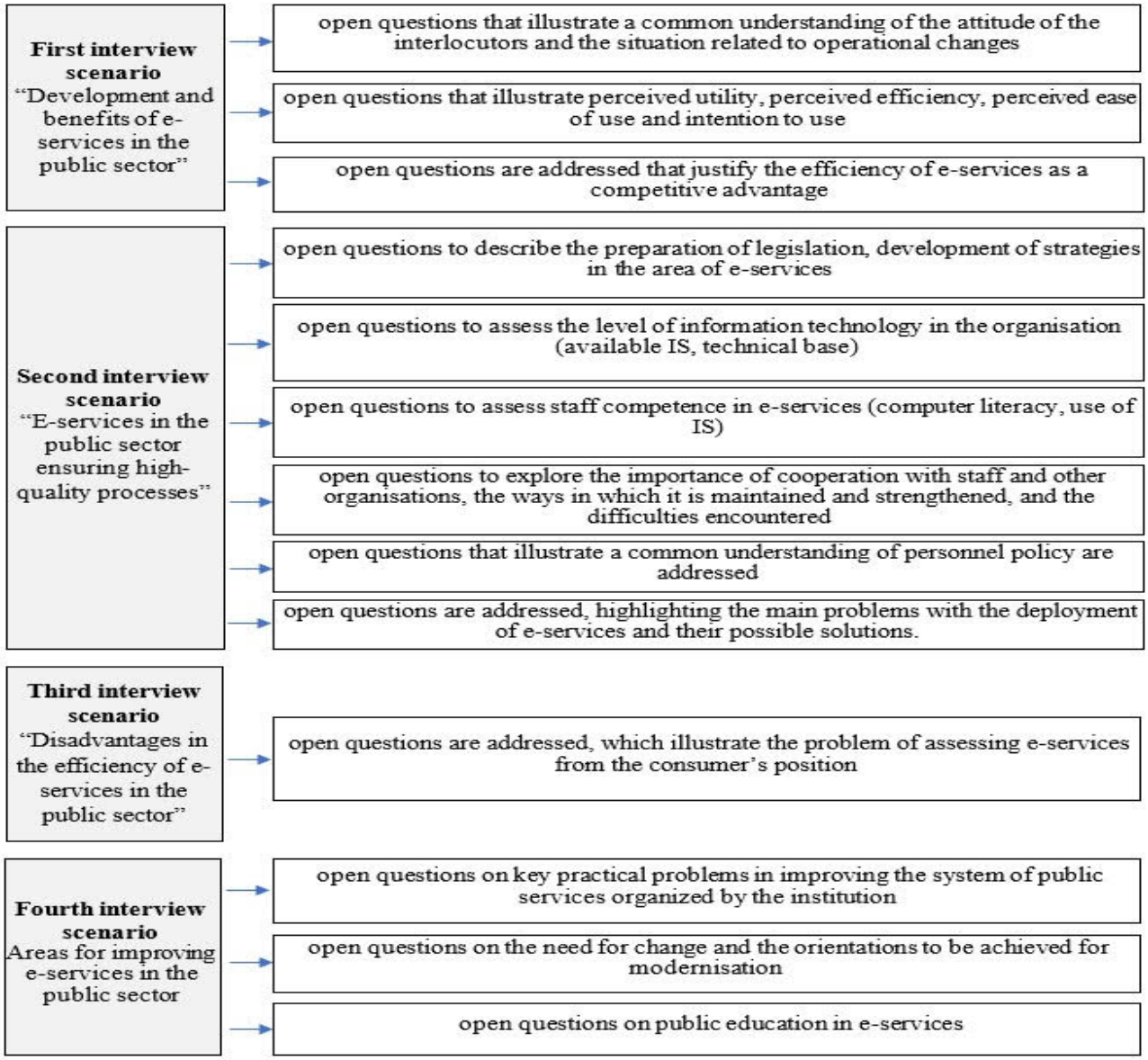


Figure 3. Logical matrix of a semi-structured interview. Source: Authors representation.

In order to determine a systematic approach to the study, the interpretation of the interviews was based on the triangulation of the content analysis, as well as on the data from the legal documents and the case study. The triangulation of the semi-structured interview is presented in Table 2.

Table 2. Triangulation of semi-structured interview content analysis (Source: Authors representation).

Scenarios (1–4)	Categories; Subcategories	Repetition Rate	Interview Quates
Development and benefits of e-services	Factors influencing the successful development of e-services: Legal documents; Human resources and skills; Financial and IT resources; Advantages. Customer evaluation: availability and quality of information.	6 5 6	"<. . .> allows faster and more efficient implementation of the processes of the programs administered by the organisation, simplified the provision of services, reduced human errors"; "Consumer accessibility and convenience'"; "<. . .> transparency of information; "<. . .> removes time and space barriers; "<. . .> three key aspects that allow people to benefit from online services and information; "Reducing bureaucracy, improving access to information in decision-making, fostering better customer relationships, reducing costs".
E-services in the public sector ensuring high-quality processes	Responsibility for system processes: Human skills, new competences; Financial and IT resources; E-services system limitations.	6 6 4	"The development of e-services is complex and time-intensive and resource-intensive, the activities of IT employees in the public sector are often attributed to support functions and are therefore submerged in the organisational structure"; "<. . .> the information communication and technology infrastructure has been sufficiently developed; "<. . .> the responsibility for each system component is assigned to individual departments and their staff'; "<. . .> should be tested annually'; <. . .>personal responsibility, leadership and management opportunities; <. . .> to develop staff skills on how to work in e-space with digital documents"; "<. . .> leadership capacity building".
Disadvantages in the efficiency of e-services	Factors affecting the importance of an e-service system: Legal documents; Human resources and skills; Financial and IT resources. E-services system management methodologies: New tools, new competences.	6 5 6	"<. . .> mobility is very important, the ability to quickly form teams, in a way we are very difficult. Many people find it difficult to think systematically, patterns of behavior deeply rooted in man and difficult to change"; "<. . .> a methodological instruction on how to implement that legislation is missing"; "Administrative complexity, one organisation carries out one project, another, different activities and areas, difficult to implement"; "A common architecture for the application and monitoring of the implementation of organisational and technical cybersecurity requirements".
Areas for improving e-services	Responsibility for ongoing processes in the digitalisation system: Framework, Involvement of staff in decision-making processes; Team Working.	6 6	"<. . .> e-services by strengthening telecommunications infrastructure have also to be improved"; "Reduction of negative environmental impacts of the organisation"; "Public opinion helps to evaluate the functions of the organisation from time to time, improve and move forward"; "We need to create ways to involve people in discussions at an early stage/at the beginning of the debate, not only when a decision is made"; "<. . .> organizational cooperation is needed to deal with transformational issues".

4.3. A Unified Systematic Model: Construct and Application

The conceptual and empirical analysis of the phenomenon has led to the scientific result—the development of a systematic model that demonstrates a holistic approach to the development of e-service systems in public sector organisations.

The structure of the model is explained by its cyclical nature (levels 1–4) and close interaction.

The visualisation of the model is presented in Figure 4.

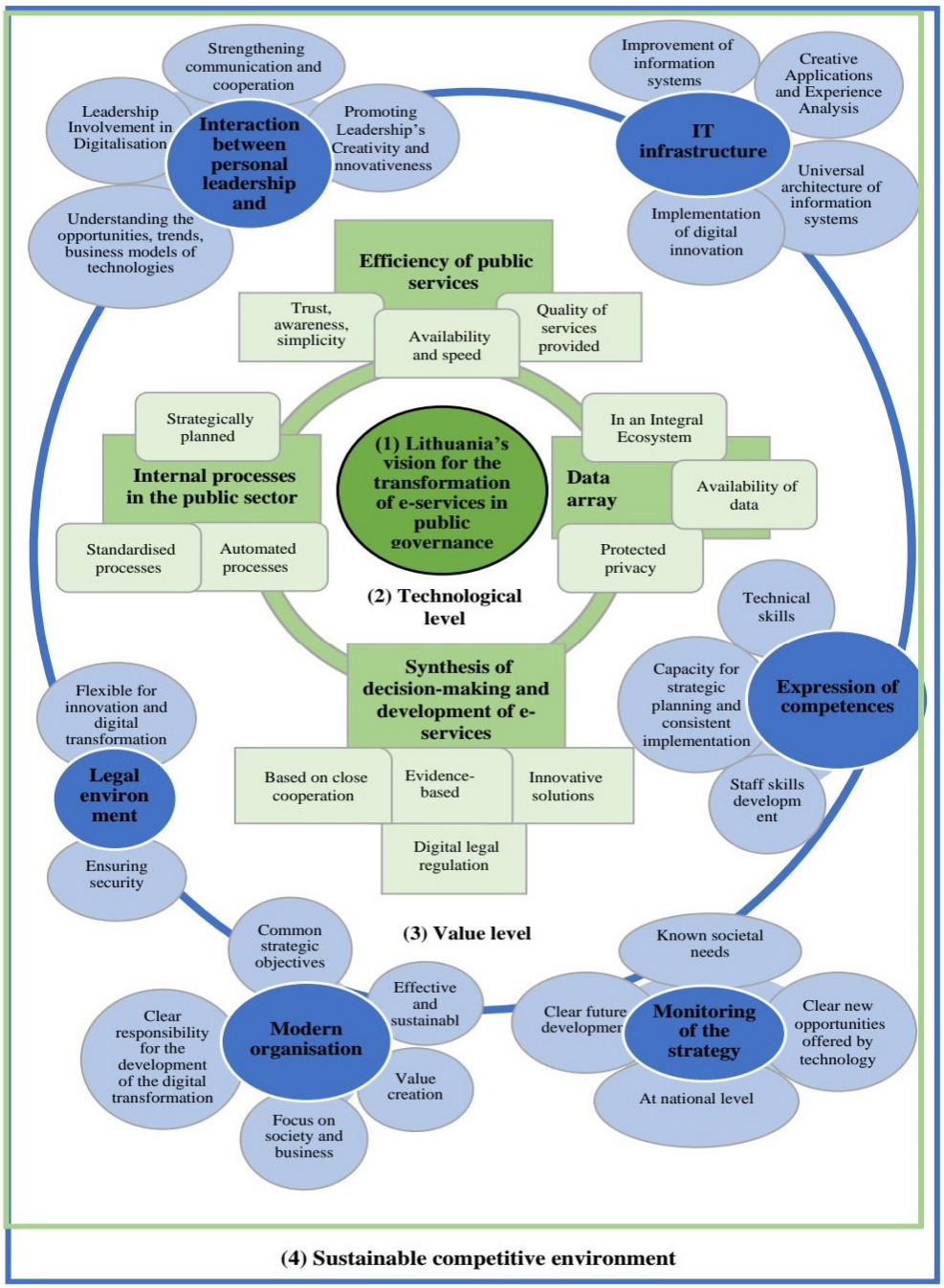


Figure 4. Model for the efficient development of e-services in the public sector as an expression of a sustainable competitive advantage (Source: Authors representation).

The logical construction of the model as follows: the starting point for the model is the vision of the transformation of e-services in the Lithuanian public administration (Level 1), which is documented in National Progress Programme 2021–2030, Digital Agenda for Europe, etc., this level directly correlated with the second level, which ensures the Technological Level (2) and demonstrates the efficiency of the e-services provided by the following four components: efficiency of public e-services; internal public sector processes; data array; synthesis of decision-making and development of e-services. The model shows the interaction with technological level variables in trust, awareness, simplicity; quality of service; data availability; automated processes; strategically planned and standardised processes; based on cooperation and evidence; innovative solutions; digital regulation; an integrated ecosystem; and protected privacy of data. The model then adds a new dimension, the

Value Level (3), which covers the development of the services provided, requiring the reflection of 6 environments: the legal environment; the modern organisation; the interaction between personal leadership and the organisational culture; the monitoring of the strategy, the development of competences and the ICT infrastructure. The model integrates the Level of Sustainable Competitive Environment (4), which reflects the effectiveness of the development of e-services in the public sector and is based on consumer trust, transparency, contribution to the balanced development of socio-economic sustainability in Lithuania, reduction in regional exclusion, strengthening of national security, and increasing the openness of government services.

The novelty of the model is described and demonstrated in two ways; *first*, conceptually, i.e., as a new scientific idea, as there is no systematic model in the scientific literature that is specific to public sector organisations. *Second*, our study shows practical relevance. It helps to answer the research question from a practical point of view. The study demonstrates the importance of monitoring, which ensures that the general public has access to information so that members of the community can provide feedback and contribute to qualitative change in the public sector.

The proposed model can be applied to public organisations similar in terms of the scope of the tasks provided. Looking at the experiences of different European countries in measuring digitalisation in the public sector, we can say that the focus is still on implementing sustainability as a public policy or policy area, rather than on the level of efficiency and performance of the institution(s). The comprehensive approach allows for a more informed evaluation of digital transformation efforts, offering insights into areas of strength and opportunities for further development.

Our model provides a wider view: it provides an integrated system of indicators that identifies the factors that promote public citizenship, allows for conceptual analysis and empirical research on how to strengthen the effectiveness of e-service development in the public sector, ensures high-quality public interaction with public sector changes, manages new challenges, and contributes to the conceptual formulation of Lithuania's long-term development strategy.

5. Discussion and Conclusions

Our study examines the trends in the efficiency of public sector e-services development in achieving the Sustainable Development Goals by identifying and highlighting procedural actions that contribute to improving e-services development and sustainable competitive advantage. The authors have developed an interdisciplinary discourse, creating a space for other scientists to contribute to wider discussions.

A unified systematic model was proposed to answer the above questions, and the conclusions are as follows:

Digital capabilities have a significant positive impact on the efficiency of e-services, the search for sustainable competitive advantage and resilience in the public sector.

Empirical analysis of statistical data shows that Lithuania is making progress in the delivery of digital public services, to make services more efficient, more accessible to the public and more user-friendly. The upward trend in the number of businesses and members of the public using e-services suggests that e-services will only continue to grow in importance and will become increasingly important for public sector organisations: in high-tech and open data executive reform in 2023 ranked Lithuania 11th out of 35 countries.

The quality of the services provided by the eGovernment portal is well and highly appreciated by users, which has an impact on the growth of the number of users. In 2023, the public rated the presentation of information in the eGovernment portal as 7, the usefulness of the information as 8 and the clarity of the content as 8. Public opinion on the evaluation of the work of state and municipal authorities is important. Over the last five years, trust in state and local authorities has increased from 51% to 65%.

In a theoretical contribution, the authors reveal symbolic narratives such as the "grey area" on the path from digital capabilities in e-services efficiency to sustainable competitive

advantage in the public sector, explain the conditions under which digital capabilities affect the public sector, and enrich the concepts with new theoretical insights, constructing a model. The model developed focuses on value creation in public sector services at four levels: internal–conceptual; internal–technological; internal–personal management; internal and external—to ensure a sustainable competitive environment. In contrast to the existing models discussed in the theoretical part, our model allows modelling the effectiveness of e-services at all four levels of public sector development in order to enable competitive advantage in an ecosystem where cyclically interacting structural components—are identified at each level.

In managerial implication, the authors provide public sector managers with a new perspective on increasing organisational responsibility in the development of e-services to ensure sustainable competitive advantage and resilience. In this context, the positive experiences discovered via the case study are important.

In terms of practical implications, this study can help policy-makers to embed the principles of responsible innovation in the professional discourse across the public sector and to develop forward-looking strategic thinking, further mitigate the negative impact of collaboration and maintain a competitive edge.

Limitations and directions for future research. In future research projects, the authors should carry out a longitudinal study, expanding the geography of the research in order to obtain a broader picture of this social phenomenon and to learn from experiences and new perspectives from different countries.

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References

Abubakar, Abubakar Mohammed, Hamzah Elrehail, Maher Ahmad Alatailat, and Alev Elçi. 2019. Knowledge management, decision-making style and organizational performance. *Journal of Innovation & Knowledge* 4: 104–14. [CrossRef]

Abu-Shanab, Emad. 2019. Predicting Trust in E-government: Two Competing Models. *Electronic Government an International Journal* 1: 29–143. [CrossRef]

Adnan, Mohammed, Masitah Ghazali, and Nur Zuraifah Syazrah Othman. 2022. E-participation within the context of e-government initiatives: A comprehensive systematic review. *Telematics and Informatics Reports* 8: 100015. [CrossRef]

Afarjanc, Edgaras. 2019. The Model of Factors Influencing the Quality of E-Service Improvement Process. Ph.D. dissertation, Vilnius University Publishing House, Vilnius, Lithuania.

Agger, Annika, and Eva Sorensen. 2016. Managing collaborative innovation in public bureaucracies. *Planning Theory* 17: 53–73. [CrossRef]

Alkheyi, Ali Saif Ali Alkheyi, Gamal S. A. Khalifa, Ali Ameen, Md Sazzad Hossain, M. M. Hewedi, and Nor Saidi Mohamed Nasir. 2020. Strategic Leadership Practices on Team Effectiveness: The Mediating Effect of Knowledge Sharing in the UAE Municipalities. *The Academic Leadership Journal* 21: 99–112.

Alotaibi, Youseef A. 2020. A New Secured E-Government Efficiency Model for Sustainable Services Provision. *Journal of Information Security and Cybercrimes Research* 3: 75–96. [CrossRef]

Alvarenga, Ana, Florinda Matos, Radu Godina, and João C. O. Matias. 2020. Digital Transformation and Knowledge Management in the Public Sector. *Sustainability* 12: 5824. [CrossRef]

Androniceanu, Armenia, and Irina Georgescu. 2021. E-Government in European Countries, a Comparative Approach Using the Principal Components Analysis. *The NISPAcee Journal of Public Administration and Policy* 14: 65–86. [CrossRef]

Andronie, Mihai, George Lăzăroiu, Mariana Iatagan, Iulian Hurloiu, and Irina Dijmărescu. 2021. Sustainable Cyber-Physical Production Systems in Big Data-Driven Smart Urban Economy: A Systematic Literature Review. *Sustainability* 13: 751. [CrossRef]
Androutsopoulou, Aggeliki, Euripidis Loukis, Nikos Karacapilidis, and Yannis Charalabidis. 2019. Transforming the communication between citizens and government through AI-guided chatbots. *Government Information Quarterly* 36: 358–67. [CrossRef]
Ansell, Christopher, and Jarle Trondal. 2018. Governing Turbulence: An Organizational-Institutional Agenda. *Perspectives on Public Management and Governance* 1: 43–57. [CrossRef]
Anshari, Muhammad, and Syamimi Ariff Lim. 2017. E-Government with Big Data Enabled through Smartphone for Public Services: Possibilities and Challenges. *International Journal of Public Administration* 40: 1143–58. [CrossRef]
Aslanova, Irina, and Aleksandra Kulichina. 2020. Digital Maturity: Definition and Model. Paper presented at the 2nd International Scientific and Practical Conference "Modern Management Trends and the Digital Economy: From Regional Development to Global Economic Growth" (MTDE 2020), Yekaterinburg, Russia, April 16–17; pp. 443–49. [CrossRef]
Avila-Gutierrez, Maria Jesus, Alejandro Martin-Gomez, Francisco Aguayo-Gonzalez, and Juan Ramon Lama-Ruiz. 2020. Eco-holonic 4.0 circular business model to conceptualize sustainable value chain towards digital transition. *Sustainability* 12: 1889. [CrossRef]
Bailey, Arlene, and Kweku-Muata Osei-Bryson. 2018. Contextual reflections on innovations in an interconnected world: Theoretical lenses and practical considerations in ICT4D. *Information Technology for Development* 24: 423–28. [CrossRef]
Banks, George C., Thomas Fischer, Janaki Gooty, and George Stock. 2021. Ethical leadership: Mapping the terrain for concept cleanup and a future research agenda. *The Leadership Quarterly* 32: 101471. [CrossRef]
Bannister, Frank, and Regina Connolly. 2020. The future ain't what it used to be: Forecasting the impact of ICT on the public sphere. *Government Information Quarterly* 37: 101410. [CrossRef]
Barabashev, Alexey G. 2016. Crisis of State Governance and its Influence on Basic Administrative Paradigms of State and Bureaucracy. *Political Science* 3: 163–94.
Bellandi, Marco, Lisa De Propris, and Erica Santin. 2021. A Place-Based View on Industry 4.0 in Local Productive Systems. *Business*, 51–69. [CrossRef]
Berryhill, Jamie, Kevin Kok Heang, Rob Clogher, and Keegan McBride. 2019. *Hello, World: Artificial Intelligence and Its Use in the Public Sector*. OECD Working Papers on Public Governance, No. 36. Paris: OECD Publishing. [CrossRef]
Bhuvana, Manoharan, and Shanmugam Vasantha. 2020. Determinants of Behavioral Intention to Access E-Governance Services by Rural People with the Mediating Effect of Information and Communication (ICT) Literacy. *Journal of Advanced Research in Dynamical & Control Systems* 12: 176–87. [CrossRef]
Borg, Kim, and Liam Smith. 2018. Digital inclusion and online behaviour: Five typologies of Australian internet users. *Behaviour & Information Technology* 37: 367–80. [CrossRef]
Bowen, Frances E., Mahdi Rostami, and Piers Steel. 2010. Timing is everything: A meta-analysis of the relationships between organizational performance and innovation. *Journal of Business Research* 63: 1179–85. [CrossRef]
Broekhuizen, Thijs Gijsenberg, Oliver Emrich, Broekhuis Maarten, Donkers Bas, and Laurens Manda Sloot. 2021. Digital platform openness: Drivers, dimensions and outcomes. *Journal of Business Research* 122: 902–14. [CrossRef]
Canning, Victoria. 2020. Corrosive Control: State-Corporate and Gendered Harm in Bordered Britain. *Critical Criminology: An International Journal* 28: 259–75. [CrossRef]
Chaffey, Dave. 2007. *E-Business and E-Commerce Management—Strategy, Implementation and Practice*. London: Pearson Education Limited.
Choi, Taehyon, and Susan Meyers Chandler. 2020. Knowledge vacuum: An organizational learning dynamic of how e-government innovations fail. *Government Information Quarterly* 37: 101416. [CrossRef]
Collings, David G., Hugh Scullion, and Paula Caliguiri, eds. 2019. *Global Talent Management*, 2nd ed. London: Routledge.
Contreras, Francoise, Elif Baykal, and Ghulam Abid. 2020. E-Leadership and Teleworking in Times of COVID-19 and Beyond: What We Know and Where Do We Go. *Frontiers in Psychology* 11: 590271. [CrossRef]
Coreynen, Wim, Paul Matthyssens, Johanna Vanderstraeten, and Arjen van Witteloostuijn. 2020. Unravelling the internal and external drivers of digital servitization: A dynamic capabilities and contingency perspective on firm strategy. *Industrial Marketing Management* 89: 265–77. [CrossRef]
Creswell, John W. 2007. *Qualitative Inquiry and Research Design: Choosing among Five Approaches*, 2nd ed. New York: Sage Publications, Inc.
Cruz, David Valle, J. Ignacio Criado, Rodrigo Sandoval-Almazán, and Edgar A. Ruvalcaba-Gomez. 2020. Assessing the public policy-cycle framework in the age of artificial intelligence: From agenda-setting to policy evaluation. *Government Information Quarterly* 37: 101509. [CrossRef]
De Ruyter, Ko, Luci Moorman, and Jos Lemmink. 2001. Antecedents of Commitment and Trust in Customer–Supplier Relationships in High Technology Markets. *Industrial Marketing Management* 30: 271–86. [CrossRef]
Desouza, Kevin C., and Benoy Jacob. 2017. Big Data in the Public Sector: Lessons for Practitioners and Scholars. *Administration & Society* 49: 1043–64. [CrossRef]
Dhaoui, Iyad. 2019. Good Governance for Sustainable Development. MPRA Munich Personal RePEc Archive. January. No. 92544. Available online: https://mpra.ub.uni-muenchen.de/92544/ (accessed on 25 November 2023).
Dhaoui, Iyad. 2021. E-Government for Sustainable Development: Evidence from MENA Countries. *Journal of the Knowledge Economy* 13: 2070–99. [CrossRef]

Dobrolyubova, Elena, Elena Klochkova, and Oleg Alexandrov. 2019. Digitalization and Effective Government: What Is the Cause and What Is the Effect? In *Digital Transformation and Global Society*. Edited by Daniel A. Alexandrov, Alexander V. Boukhanovsky, Andrei V. Chugunov, Yury Kabanov, Olessia Koltsova and Ilya Musabirov. DTGS 2019. Communications in Computer and Information Science, 1038. Cham: Springer. [CrossRef]

Domingues, Ana Rita, Rodrigo Lozano, Kim Ceulemans, and Tomás B. Ramos. 2017. Sustainability reporting in public sector organisations: Exploring the relation between the reporting process and organisational change management for sustainability. *Journal of Environmental Management* 192: 292–301. [CrossRef] [PubMed]

Droege, Hinrika, Andrea Raggi, and Tomás B. Ramos. 2021. Overcoming Current Challenges for Circular Economy Assessment Implementation in Public Sector Organisations. *Sustainability* 13: 1182. [CrossRef]

Duan, Yanqing, John S. Edwards, and Yogesh K. Dwivedi. 2019. Artificial intelligence for decision making in the era of Big Data–evolution, challenges and research agenda. *International Journal of Information Management* 48: 63–71. [CrossRef]

Dwivedi, Yogesh K., Elvira Ismagilova, D. Laurie Hughes, Jamie Carlson, Raffaele Filieri, Jenna Jacobson, Varsha Jain, Heikki Karjaluoto, Hajer Kefi, Anjala S. Krishen, and et al. 2021. Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management* 59: 102168. [CrossRef]

Eggers, Fabian. 2020. Masters of Disasters? Challenges and Opportunities for SMEs in Times of Crisis. *Journal of Business Research* 116: 199–208. [CrossRef] [PubMed]

Evenseth, Lise L., Maria Sydnes, and Anne H. Gausdal. 2022. Building Organizational Resilience through Organizational Learning: A Systematic Review. *Frontiers in Communication* 7: 837386. [CrossRef]

Featherman, Mauricio S., and Paul A. Pavlou. 2003. Predicting e-Services Adoption: A Perceived Risk Facets Perspective. *International Journal of Human-Computer Studies* 59: 451–74. [CrossRef]

Garson, G. David. 2006. *Public Information Technology and E-Governance: Managing the Virtual State*. Burlington: Jones and Bartlett Publishers.

Gebauer, Heiko, Elgar Fleisch, Claudio Lamprecht, and Felix Wortmann. 2020. Growth paths for overcoming the digitalization paradox. *Business Horizons* 63: 313–23. [CrossRef]

Gillingham, Philip, and Timothy Graham. 2016. Big Data in Social Welfare: The Development of a Critical Perspective on Social Work's Latest "Electronic Turn". *Australia Social Work* 70: 21. [CrossRef]

Granstrand, Ove, and Marcus Holgersson. 2020. Innovation ecosystems: A conceptual review and a new definition. *Technovation*, 90–91. [CrossRef]

Hallstedt, Sophie I., Ola Isaksson, and Anna Öhrwall Rönnbäck. 2020. The Need for New Product Development Capabilities from Digitalization, Sustainability, and Servitization Trends. *Sustainability* 12: 10222. [CrossRef]

Hasnat, Baban. 2018. Big Data: An Institutional Perspective on Opportunities and Challenges. *Journal of Economic Issues* 52: 580–88. [CrossRef]

Harald, Heinrichs, and Laws Norman. 2021. Sustainable public administration. *Sustainability* 13: 6382. [CrossRef]

Herasymiuk, Kostiantyn, Oleg V. Martselyak, Yuliya N. Kirichenko, Nataliya V. Zhmur, and Iuliia I. Shmalenko. 2020. Principles of Integrity and Good Governance in Public Administration. *International Journal of Management* 11: 545–55. Available online: https://ssrn.com/abstract=3601652 (accessed on 15 May 2020).

Holgersson, Jesper, Eva Söderström, and Jeremy Rose. 2019. Digital inclusion for elderly citizens for a sustainable society Research-in-Progress Papers. Paper presented at the Twenty-Seventh European Conference on Information Systems (ECIS2019), Stockholm-Uppsala, Sweden, June 8–14; Available online: https://www.researchgate.net/publication/333264596_DIGITAL_INCLUSION_OF_ELDERLY_CITIZENS_FOR_A_SUSTAINABLE_SOCIETY#fullTextFileContent (accessed on 25 November 2023).

Hughes, Jeffrey, Martin Kornberger, Brad MacKay, Phillips O'brien, and Sneha Reddy. 2021. Organizational strategy and its implications for strategic studies: A review essay. *Journal of Strategic Studies* 46: 427–50. [CrossRef]

Jacob, Klaus, Caroline Paulick-Thiel, Julia Teebken, Sylvia Veit, and Mandy Singer-Brodowski. 2021. Change from Within: Exploring Transformative Literacy in Public Administrations to Foster Sustainability Transitions. *Sustainability* 13: 4698. [CrossRef]

Jansen, Arild, and Svein Olnes. 2016. The nature of public e-services and their quality dimensions Government. *Government Information Quarterly* 33: 647–57. [CrossRef]

Jean, Ruey-Jer "Bryan", Daekwan Kim, and Erin Cavusgil. 2020. Antecedents and outcomes of digital platform risk for international new ventures' internationalization. *Journal of World Business* 55: 101021. [CrossRef]

Kassen, Maxat. 2019. Open data and e-government—Related or competing ecosystems: A paradox of open government and promise of civic engagement in Estonia. *Information Technology for Development* 25: 552–78. [CrossRef]

Kern, Florian, Karoline S. Rogge, and Michael Howlett. 2019. Policy mixes for sustainability transitions: New approaches and insights through bridging innovation and policy studies. *Research Policy* 48: 103832. [CrossRef]

Khalifa, Gamal. 2020. Intervening role of supervisor trust and leader-member exchange: An investigation into the role of supervisor support on employee innovative behaviour. *Journal of Association of Arab Universities for Tourism and Hospitality* 17: 46–76. [CrossRef]

Khanra, Sayantan, and Rojers P. Joseph. 2019. Governance Maturity Models: A Meta-ethnographic Study. *The International Technology Management Review* 8: 1–9. [CrossRef]

Khanra, Sayantan, and Rojers P. Joseph. 2020. Development and Validation of an Assessment Framework for E-Government Services. In *Electronic Governance and Open Society: Challenges in Eurasia*. Edited by Andrei Chugunov, Igor Khodachek, Yuri Misnikov and Dmitrii Trutnev. EGOSE 2020. Communications in Computer and Information Science. Cham: Springer, vol. 1349, pp. 27–41. [CrossRef]

Kravariti, Foteini, Konstantinos Tasoulis, Hugh Scullion, and Manar Khaled Alali. 2023. Talent management and performance in the public sector: The role of organisational and line managerial support for development. *The International Journal of Human Resource Management* 34: 1782–807. [CrossRef]

Kretschmer, Tobias, and Pooyan Khashabi. 2020. Digital Transformation and Organization Design: An Integrated Approach. *California Management Review* 62: 86–104. [CrossRef]

Krpálek, Pavel, Kateřina Berková, Andrea Kubišová, Katarína Krpálková Krelová, Dagmar Frendlovská, and Daniela Spiesová. 2021. Formation of Professional Competences and Soft Skills of Public Administration Employees for Sustainable Professional Development. *Sustainability* 13: 5533. [CrossRef]

Laita, Amine, and Mustapha Belaissaoui. 2017. Information Technology Governance in Public Sector Organizations. In *Europe and MENA Cooperation Advances in Information and Communication Technologies*. Edited by Álvaro Rocha, Mohammed Serrhini and Carlos Felgueiras. Advances in Intelligent Systems and Computing. Cham: Springer, vol. 520, pp. 331–40. [CrossRef]

Lewandowsky, Stephan, Laura Smillie, David Hertwing Garcia, Weatherall Ralph, Egidy Jim, Ronald StefanieRobertson, Cailin O'connor, Anastasia Kozyreva, and Philipp Lorenz-Spreen. 2020. Technology and Democracy—Understanding the Influence of Online Technologies on Political Behaviour and Decision-Making. Publications Office, European Commission, Joint Research Centre. Available online: https://data.europa.eu/doi/10.2760/709177 (accessed on 25 November 2023).

Lobschata, Lara, Benjamin Muellerb, Felix Eggersd, Laura Brandimartee, Sarah Diefenbach, Mirja Kroschke, and Jochen Wirtz. 2021. Corporate Digital Responsibility. *Journal of Business Research* 122: 875–88. [CrossRef]

Lopes, André Vaz, and Josivania Silva Farias. 2022. How can governance support collaborative innovation in the public sector? A systematic review of the literature. *International Review of Administrative Sciences* 88: 114–30. [CrossRef]

Lozano, Rodrigo, and Iciar Garcia. 2020. Scrutinizing sustainability change and its institutionalization in organizations. *Frontiers in Sustainability* 1: 1. [CrossRef]

Lozano, Rodrigo, Maria Barreiro-Gen, and Afnan Zafar. 2021. Collaboration for organizational sustainability limits to growth: Developing a factors, benefits, and challenges framework. *Sustainable Development* 29: 728–37. [CrossRef]

Mahlow, Cerstin, and Andreas Hediger. 2019. Digital Transformation in Higher Education—Buzzword or Opportunity? Available online: https://dl.acm.org/doi/fullHtml/10.1145/3329488/3331171 (accessed on 25 November 2023).

Malodia, Suresh, Amandeep Dhir, Mahima Mishra, and Zeeshan Ahmed Bhatti. 2021. Future of e-Government: An integrated conceptual framework. *Technological Forecasting & Social Change* 173: 121102. [CrossRef]

Manžuch, Zinaida, and Elena Macevičiūtė. 2020. Getting ready to reduce the digital divide: Scenarios of Lithuanian public libraries. *Journal of the Association for Information Science and Technology* 71: 1205–17. [CrossRef]

Marques, Isabel, João Leitão, Alba Carvalho, and Dina Pereira. 2021. Public Administration and Values Oriented to Sustainability: A Systematic Approach to the Literature. *Sustainability* 13: 2566. [CrossRef]

Marti, Emilio, Martin Fuchs, Mark DesJardine, Rieneke Slager, and Jean-Pascal Gond. 2023. A More Impactful Strategy for Sustainable Investing. Finance and Investing. *Harward Business Review*.

Matarazzo, Michiela, Lara Penco, Giorgia Profumo, and Roberto Quaglia. 2021. Digital transformation and customer value creation in Made in Italy SMES: A dynamic capabilities perspective. *Journal of Business Research* 123: 642–56. [CrossRef]

McNab, Christine. 2009. What social media offers to health professionals and citizens? *Bulletin of the World Health Organization* 87: 566. [CrossRef]

Meuleman, Louis. 2021. Public Administration and Governance for the SDGs: Navigating between Change and Stability. *Sustainability* 13: 5914. [CrossRef]

Misuraca, Gianluca, Egidijus Barcevičius, and Cristiano Codagnone, eds. 2020. *Exploring Digital Government Transformation in the EU—Understanding Public Sector Innovation in a Data-Driven Society*. EUR 30333. Luxembourg: EN, Publications Office of the European Union. ISBN 978-92-76-21326-0. [CrossRef]

Moonti, Roy Marthen. 2019. Regional Autonomy in Realising Good Governance. *Substantive Justice International Journal of Law* 1: 43–53. [CrossRef]

Myo, Yan Naing, Gamal S. A. Khalifa, and Thin Thin Aye. 2019. The Impact of Service Quality on Customer Loyalty of Myanmar Hospitality Industry: The Mediating Role of Customer Satisfaction. *International Journal of Management and Human Science* 3: 1–11.

Nasser, Basem, Derar Eleyan, and Maan Alkhateeb. 2022. E-Government Sustainability & Governance: A General Framework. *International Journal of Scientific and Technology Research* 11: 139–44.

Norton, Andriew, Surendra Shroff, and Nick Edwards. 2020. *Digital Transformation—An Enterprise Architecture Perspective*. London: PublishNation Limited.

Ochara, Nixon Muganda, and Tendani Mawela. 2015. Enabling social sustainability of e-participation through mobile technology. *Information Technology for Development* 21: 205–28. [CrossRef]

Pangarso, Astadi, Endang Siti Astuti, Kusdi Raharjo, and Tri Wulida Afrianty. 2020a. A New Theoretical Framework of Organizational Effectiveness from Knowledge and Ambidexterity Perspectives. *GATR Journal Management and Marketing Review* 5: 213–25. [CrossRef] [PubMed]

Pangarso, Astadi, Endang Siti Astuti, Kusdi Raharjo, and Tri Wulida Afrianty. 2020b. Data of innovation ambidexterity as a mediator in the absorptive capacity effect on sustainable competitive advantage. *Data in Brief* 29: 105200. [CrossRef]
Pencheva, Irina, Marc Esteve, and Slava Jankin Mikhaylov. 2020. Big Data and AI—A transformational shift for government: So, what next for research? *Public Policy and Administration* 35: 24–44. [CrossRef]
Pinem, Ave, Immanuella Adriana, Margi Ivone, Achmad Hidayanto, Phusavat Nizar, and Meyliana Kongkiti. 2018. Trust and its impact towards continuance of use in government-to-business online service. *Transforming Government: People, Process and Policy* 12: 265–85. [CrossRef]
Pollitt, Christopher, and Geert Bouckaert. 2011. *Public Management Reform: A Comparative Analysis—New Public Management, Governance, and the Neo-Weberian State*, 3rd ed. Oxford: Oxford University Press.
Prati, L. Melita, Ceasar Douglas, Gerald R. Ferris, Anthony P. Ammeter, and M. Ronald Buckley. 2003. Emotional intelligence, leadership effectiveness, and team outcomes. *The International Journal of Organizational Analysis* 11: 21–40. [CrossRef]
Rakšnys, Adomas Vincas, Dangis Gudelis, and Arvydas Guogis. 2021. The Analysis of Opportunities of the Application of Big Data and Artificial Intelligence Technologies in Public Governance and Social Policy. *Socialinė Teorija, Empirija, Politika ir Praktika* 22: 88–100. [CrossRef]
Ranzatti, Mario Augusto, Alessandro Marco Rosini, Orlando Roque Da Silva, Angelo Palmisano, and Arnoldo J H Guevara. 2019. Quantitative Perspective of the Implementation of Best Practices on Itil: Information Technology Infrastructure Library in a Brazilian Public Company under People and Processes Overview. *Journal on Innovation and Sustainability* 10: 3–11. [CrossRef]
Reascos, Irving, João Álvaro Carvalho, and Sonia Bossano. 2019. Implanting IT Applications in Government Institutions: A Process Model Emerging from a Case Study in a Medium-Sized Municipality. Paper presented at the 12th International Conference on Theory and Practice of Electronic Governance (ICEGOV2019), Melbourne, VIC, Australia, April 3–5; pp. 80–85. [CrossRef]
Ren, Z. J., R. S. Tao, and Z. H. Hu. 2018. Impact of organization career management on career growth of knowledge employee: Mediation effect of perceived organizational support. *Journal of Hubei University of Arts and Science* 39: 48–52.
Revyakin, Sergey. 2019. Functionality of e-participation platforms: Why social networks? *Public Administration Issues* 3: 88–106.
Rosário, Albérico Travassos, and Joana Carmo Dias. 2022. Sustainability and the Digital Transition: A Literature Review. *Sustainability* 14: 4072. [CrossRef]
Rowley, Jennifer. 2006. An analysis of the e-service literature: Towards a research agenda. *Internet Research* 16: 339–59. [CrossRef]
Ryan, James C., and Syed A. A. Tipu. 2013. Leadership effects on innovation propensity: A two-factor full range leadership model. *Journal of Business Research* 66: 2116–29. [CrossRef]
Safiullin, Marat R., and Elvir M. Akhmetshin. 2019. Digital Transformation of a University as a Factor of Ensuring Its Competitivenes. *International Journal of Engineering and Advanced Technology* 9: 7387–90. [CrossRef]
Santiago, Anna Maria, and Richard John Smith. 2019. What can "Big data" methods offer human services research on organizations and communities? *Human Service Organizations: Management, Leadership & Governance* 43: 344–356.
Shevyakova, Anna, Yelena Petrenko, Natalia Fomenko, Eleonora Munsch, and Nazgul Daribekova. 2023. Building Competencies for Industry 4.0: Suggestions from Kazakhstan Experience. *Communications of International Proceedings* 2023: 4136223. [CrossRef]
Shpak, Nestor, Yuliya Bondarenko, Włodzimierz Sroka, Ihor Kulyniak, Nataliia Tsymbalista, and Olha Prosovych. 2022. Strategic planning of the recreational and tourist industry development: The Ukrainian evidence. *International Journal of Entrepreneurial Knowledge* 10: 100–22. [CrossRef]
Singh, Monika, and Ganesh P. Sahu. 2021. Key Factors for GreenIS Acceptancein Banking Segment: Pragmatic Analysis. *International Journal of Electronic Government Research* 17: 48–67. [CrossRef]
Sjödin, David, Vinit Parida, Marin Jovanovic, and Ivanka Visnjic. 2020. Value Creation and Value Capture Alignment in Business Model Innovation: A Process View on Outcome-Based Business Models. *Journal of Product Innovation Management* 37: 158–83. [CrossRef]
Sklyar, Alexey, Christian Kowalkowski, Bård Tronvoll, and David Sörhammar. 2019. Organizing for Digital Servitization: A Service Ecosystem Perspective. *Journal of Business Research* 104: 450–60. [CrossRef]
Stake, Robert E. 2005. Qualitative Case Studies. In *The SAGE Handbook of Qualitative Research*, 3rd ed. Edited by Norman K. Denzin and Yvonna S. Lincoln. Thousand Oaks: Sage Publications.
Stamenkov, Gjoko, and Zamir Dika. 2015. A sustainable e-service quality model. *Journal of Service Theory and Practice* 25: 414–42. [CrossRef]
Solechan, Solechan. 2021. Government Efforts in Disaster Emergency Capacity. *Administrative Law and Governance Journal* 4: 126–43.
Sundberg, Leif. 2019. If Digitalization is the Solution, What is the Problem? Paper presented at the 19th European Conference on Digital Government, Northern Nicosia, Cyprus, October 24–25. [CrossRef]
Tarnovskaya, Veronika. 2023. Sustainability as the Source of Competitive Advantage. How Sustainable is it? In *Creating a Sustainable Competitive Position: Ethical Challenges for International Firms (International Business and Management)*. Edited by Pervez N. Ghauri, Ulf Elg and Sara Melén Hånell. Leeds: Emerald Publishing Limited, vol. 37, pp. 75–89. [CrossRef]
Terziu, Hysni. 2020. The Role of the Internet in the Development of Marketing and Electronic Services in Business. *European Journal of Economics and Business Studies* 6: 1–12. [CrossRef]
Thanh, Nguyen Van, Hye-Young Yoon, and Junseok Hwang. 2019. A Cross—Country Study on E—Government Interoperability Capability and E-Government Services. *Australian Journal of Basic and Applied Sciences* 13: 36–44. [CrossRef]

Verhoef, Peter C., Thijs Broekhuizen, Yakov Bart, Abhi Bhattacharya, John Qi Dong, Nicolai Fabian, and Michael Haenlein. 2021. Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research* 122: 889–901. [CrossRef]
Yadav, Jyoti, A. K. Saini, and Amit Kumar Yadav. 2019. Measuring citizens engagement in e-Government projects: Indian perspective. *Journal of Statistics and Management Systems* 22: 327–46. [CrossRef]
Ziemba, Paweł. 2020. Multi-criteria stochastic selection of electric vehicles for the sustainable development of local government and state administration units in Poland. *Energies* 13: 6299. [CrossRef]

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