Article

How the role of digital leadership and public service reform on bureaucratic revitalization? An empirical study of e-government implementation

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Abstract: This research investigates the relationship between the variables of public service reform (PSR) and bureaucratic revitalization and the relationship between digital leadership (DL) and bureaucratic revitalization. The research method used in this research is quantitative survey research which aims to determine the relationship between two or more variables. The research method for this research is quantitative associative, the population of this study is senior immigration officers. The data analysis method uses structural equation modeling (SEM) partial least squares (PLS), the respondents for this study were 634 senior immigration office employees who were determined using the simple random sampling method—non probability sampling, the questionnaire was designed to contain statement items using a 7 point Likert scale. A closed questionnaire is a list of questions or statements that are equipped with multiple answer choices expressed in scale form. The Likert scale used in this research is (1) strongly disagree, (2) disagree, (3) quite disagree, (4) neutral, (5) quite agree, (6) agree, (7) strongly agree. Data processing in this research used SmartPLS software. The independent variables of this research are digital leadership and public service reform and the dependent variable is bureaucratic revitalization. The stages of data analysis in this research are the outer model test which includes convergent validity, discriminant validity and composite reliability as well as inner model analysis, namely hypothesis testing. The results of this research show that public service reform has a positive and significant relationship to bureaucratic revitalization and digital leadership has a positive and significant relationship to bureaucratic revitalization. This research implies that leaders focus on engaging, using, and handling the uncertainty of emerging technologies, digital tools, and data, leaders to support bureaucratic revitalization, the immigration department must implement digital leadership, immigration leaders should encourage the use of digital platforms in their organizations, support and facilitate digital transformation. The immigration department should increase the revitalization of the bureaucracy, the immigration department should carry out public service reforms. Public services are to be good if they fulfill several principles of public interest, legal certainty, equal rights, balance of rights and obligations, professionalism, participativeness, equality of treatment/non-discrimination, openness, accountability, facilities and special treatment for vulnerable groups, timeliness, speed, convenience and affordability.

Keywords: public service reform; bureaucratic revitalization; digital leadership; immigration office; PLS-SEM

1. Introduction

Digital-based public services are public services that utilize information technology where the existence of technological infrastructure is an important part so that the implementation of these services can run according to the objectives determined at the beginning, therefore efforts to build better public services based on

digital are development of adequate information technology infrastructure both among government agencies and for the general public who will access digital-based public services. Some of the public service problems that exist in Indonesia are service times are generally inefficient and detrimental to people who need service, service is very slow and takes hours, this is very inefficient. The skills of service staff are still relatively low and not suitable for the job to provide good service. There are still many agencies that do not have clear procedures for providing services, complicated service procedures are very troublesome for us as users of public services. Many officers still show attitudes, and ways of speaking or saying things that are not friendly, some even feel they are in a superior and arrogant position. There are still service-providing agencies that do not use infrastructure and facilities that are appropriate and in line with current developments, this is also the cause of reduced effectiveness and efficiency of public services. The problem of administering public services in Indonesia, the main problem of public services today is related to improving the quality of the service itself. The quality of public services is the result of interactions from various aspects, namely the service system, human resources providing services, strategy and customers. Quality service depends on aspects such as how it is implemented, human resource support, and the institutions that manage it.

In reforming bureaucratic services, it is necessary to recognize various problems in existing bureaucratic services (Susilawati et al., 2021). Because it has limitations in providing a service to the community. With these limitations, service patterns, it is considered by some people to be poorly understood due to the complicated requirements procedures and mechanisms determined by the government bureaucracy in providing services (Mardiana, 2020) There are often dashed hopes society getting something optimal service in a bureaucratic environment can solve everything service problems. However, in fact, people feel lazy when it comes to dealing with bureaucratic government, and this can be proven with a back road, inside meaning it can cut down on procedures bureaucracy to obtain services quickly overcome bureaucratic procedures relatively long reign. State Administration Institute stated the implementation of e-governance is the implementation of information communication technologies (ICTs). This is different from information technology (IT) which has been widely known. If IT has been around for a long time and used in government environments in Indonesia, but only recently ICTs can be used to facilitate and encourage democratic life and clean government. This matter is due to the nature of IT only being used as data processing automation by the government internally, meanwhile, the use of ICTs is to support the external transformation process of government through communication and data processing commonly known as the term digital connections. Digital connections include relationships between and within governments themselves in the framework of joint-up thinking, relationships between government and institutions and non-governmental organizations (NGOs) to increase government accountability, relationships between the government and the business community to improve service, relationships between NGOs to support the learning process and synergy between them, the relationship between communities in the context of social development and economy (Nuryadin et al., 2023).

The implementation of e-governance means there has been a shift from e-administration; improving orderly administration of government towards e-citizens;

improving government relations with community members, e-services; improving public services and e-society; interaction and synergy between various components of society (Khoeroni et al., 2022). These aspects can work together as:

The power to make happen good governance through e-governance (Cahyadi and Magda, 2021). The application of e-government is encouraged by the common phenomenon that government bureaucracy uses costs which is very high (high cost) but only provides a little service which is not very responsive and accountable, then that's why bureaucratic reform is carried out, so that can eradicate the disease existing in the existing bureaucracy become a custom (Ringson and Matshabaphala, 2023). Bureaucracy tends to be patriot-moralistic, inefficient, no effective, not objective, not devoted to the public interest, not positioning themselves as tools of the people, but they have become an instrument of rulers and often appears as a very powerful ruler authoritative and repressive.

The immigration office is a technical implementation unit (UPT) in the field migration area of the West Java Ministry of Law and Human Rights which is responsible to the head of the regional office of the immigration office with the task of carrying out some the main tasks and functions of the Ministry of Law and Human Rights in the field of migration. Thus, telematics applications and electronic data processing become a necessity. Therefore, maintaining hardware and software, repairing work unit computers, processing websites and data centers, providing IT-based information in government and development administration, as well as collecting and processing input data that provides information to leaders and the wider community through information technology networks. The e-government service system is starting to be put into practice at immigration offices in line with technological developments, especially in the field of communications, where e-government is a public service process electronically and remotely without having to meet face to face (Yusuf et al., 2023). Bejerot and Hasselbladh (2013) state that E-government can facilitate interaction between superiors and subordinates, between superiors and superiors, between government bureaucracy and society, and fellow government bureaucrats who can interact with each other to share information and be able to access various needs at any time. Before using e-government, services at the immigration office were still lagging. Ushaka et al. (2024) assert many factors influence lagging, including a lack of commitment to reducing the digital gap with developed countries, such as the quality of human resources, infrastructure and difficult geographical conditions, then less than optimal service, people have to queue for quite a long time to get a turn. However, after using e-government, the immigration office was able to be on par with other nations regarding the use of e-government, the government was able to create work results that were more efficient, participatory, fair, democratic, transparent and responsible. The application of e-government provides better services to the community (Chung et al., 2022). Based on the identification of the explanation above, you can find out the research objectives that the author wants to obtain. In this research, it can explain the factors that cause public services to be provided through e-government; analyze information technology and improve government efficiency, effectiveness, transparency and accountability in providing public services.

There are relevant theories, e.g., Asbari et al. (2020) and Ushaka et al. (2024),

used in conducting this research based on several opinions, bureaucratic reform is directed at a process of transforming mindset and culture set into a bureaucratic order that is more effective and efficient so that it can provide optimal service to the community. Bejerot and Hasselbladh (2013) show that bureaucracy is found in the administrative apparatus of all modern governments. Public services are activities carried out by the government for several people who have activities that can be profitable in a unit or group in offering satisfaction even though the results are not tied to physical products. Revitalization is a series of planning and action actions. restructuring of e-government programs that have been adapted to national development targets and a telematics sector by paying attention to the basic principles and process stages of e-government without neglecting the existing conditions that have been achieved. Bhuvanij et al. (2023) suggest that E-government is an effort to utilize and utilize telematics to increase government efficiency and cost-effectiveness, which provides various better services to the public, providing more access to information wide to the public and making government administration more transparent and accountable. Satisfaction is a feeling of pleasure or disappointment that arises in someone after comparing performance and the desired results of e-government public service reform towards revitalization. Sagarik et al. (2018) explain that the implementation of bureaucracy is a solution to overcome various acts of deviation from the new Order era to the reform era. Digital transformation in the government sector in implementing an Electronic Based Government System (SPBE) requires a digital leadership role at all levels of the organization. The success of digital transformation requires support from leaders who have the commitment and awareness to make changes, prepare the necessary policy schemes, understand and map the organization's service business processes, prepare digital talent human resources, foster a culture of innovation and collaboration with the digital community and adequate budget support for governance and provision of technological assets (Sagarik et al., 2018).

Promsuwan et al. (2019) argue that various efforts have been made by government organizations to improve good public services to the community, one of which is digital-based public services, where government officials and the public who request public services do not have to meet in person but can do so using information and communication technology. El Haddad et al. (2020) maintain that people who want to request public services just need to access the web page that has been provided and then follow the instructions provided. If it is felt that it meets the existing requirements, then public services can be provided to people who have met these requirements. Public service complaints that are held directly bring together government officials who provide services to people who need services, including costs that must be paid by the community outside of official service costs, such as transportation costs to get to public service locations, another thing that people complain about is the length of time the service process takes (Karakose et al., 2022). the public has to queue at the same time as other people who want to request the same public services. This condition ultimately makes the public assess that the public services provided by government organizations are not in line with community expectations. This research aims to investigate the relationship between the variables of public service reform (PSR) and bureaucratic revitalization and investigate the

relationship between digital leadership (DL) and bureaucratic revitalization.

Research gaps

Several previous studies related to electronic government found inconsistencies in research results, namely research by Bejerot and Hasselbladh (2013) and Chatfield (2009) refers to previous research which examined the effect of using electronic government on improving the quality of public services. Pham and Vu (2022) state that Research on realizing good governance through public services, results of the research state that the implementation of good governance requires the involvement of all stakeholder components, both in the bureaucratic environment and in the community environment, close to the community and in providing services. must follow the needs of society. Fishenden and Thompson (2013) and Pham and Vu (2022) conducted research regarding a conceptual analysis study of e-government: A new paradigm in public services, the results of this research stated that there were developments in information and communication technology in bringing very good changes to the private sector which has implemented the internet as a communication medium between e-sectors. private commerce. Chung et al. (2022) show that the public sector is increasingly lagging, which still uses traditional methods of communicating with the public. This is what can trigger the development of the public sector, resulting in the development of e-government.

This research topic is very interesting because, in the current era of digitalization, it is very important to improve public services in government offices, to improve the quality of services it is necessary to implement digital leadership and reform public services in public service offices. Digital-based public services are public services that utilize information technology. where the existence of technological infrastructure is an important part so that the delivery of these services can run according to the objectives determined at the beginning, therefore efforts to build better digital-based public services are by developing adequate information technology infrastructure both between government agencies and for the general public. will access digital-based public services.

2. Literature review

2.1. Digital leadership

Digital leadership is the ability of an individual or organization to direct, manage and optimize the use of digital technology in achieving business goals and creating added value (Yuniarsih et al., 2020). Digital leadership is needed in the digital transformation process which is currently being promoted by the government to oversee change, make policies, use technology, control and monitor (Cahyadi and Magda, 2021; Pariso and Marino, 2020). Digital leadership plays an important role in strengthening relationships with customers. By utilizing technology, leaders can personalize interactions, better understand customer needs, and increase overall engagement. Leaders in the digital era must be able to facilitate and embrace new ideas to generate sustainable innovation in an era of dynamic competition (Promsuwan et al., 2019). One of the important skills in the digital era is strategic thinking. Bejerot

and Hasselbladh (2013) assert that digital leadership provides several benefits. It facilitates better decision-making by leveraging data-driven insights. Leaders can make choices based on real-time analysis, enabling rapid response to market shifts. Digital leadership improves organizational flexibility by simplifying processes and systems, facilitating flexibility to adapt to changing customer demands (Bhuiyan and Amagoh, 2011). EI Haddad et al. (2020) found that digital leadership plays an important role in strengthening relationships with customers. By leveraging technology, leaders can personalize interactions, better understand customer needs, and improve overall engagement.

2.2. Public service reform

Fishenden and Thompson (2013) mention that public service is an activity or series of activities to fulfil service needs by statutory regulations for every citizen and resident for goods, services and/or administrative services provided by public service providers, namely every state administering institution, corporation, or independent institution. which are formed based on the law for public service activities, and other legal entities formed solely for public service activities. These activities are carried out by officials, employees, officials and everyone who works in the organizing organization who is tasked with carrying out an action or series of public service actions. Public service delivery includes the implementation of services; management of public complaints; information management; Internal monitoring; outreach to the community; and consulting services (El Haddad et al., 2020). If there is incompetence, violations and failures in providing services, the organizers and all parts of the organizing organization are responsible. To facilitate the implementation of various forms of public services, an integrated service system can be implemented. To increase the efficiency and effectiveness of services, a collaboration between providers can be carried out including activities related to technical operational services and/or service support (Sagarik et al., 2018). If an organizer whose scope of authority and public service duties cannot be carried out alone due to limited resources and/or in an emergency, the organizer can ask for assistance from another organizer who has adequate capacity. Bhuiyan and Amagoh (2011) state that in an emergency, requests from other providers must be fulfilled by the provider assisting by the duties and functions of the relevant organizing organization based on statutory regulations. Public service reform aims to improve and improve the quality of public services. Based on these three concepts, they are essentially interconnected because bureaucratic reform aims to improve the quality of public services. Ushaka et al. (2024) indicate that administrative reform is a planned effort to change two things, namely bureaucratic structures and procedures, and secondly the attitudes and behaviour of bureaucrats. Determining goals is very important in administrative reform. Public service reform must be directed at examining and correcting various policy errors in the past and current policies as well as existing institutional regulatory mechanisms (Grönroos, 2019).

2.3. Bureaucratic revitalization

Bureaucratic revitalization is people working at a desk with strict rules (Yusuf et

al., 2023). Initially, the bureaucracy was an institution formed for officials, who served the king or ruler, not to serve the interests of the people (Bhuiyan and Amagoh, 2011). Created a professional government bureaucracy with characteristics, integration, high performance, free and clean of corruption, capable of serving the public, neutral, prosperous, dedicated, and upholding the basic values and code of ethics of state officials. Bureaucratic reform aims to realize good governance with officials with high integrity, productivity and excellent service to increase public trust. The bureaucratic reform strategy is an effort and step to strengthen the region and to answer challenges in the era of globalization (Karakose et al., 2022). Bureaucratic reform is not only simplifying the bureaucratic structure but also changing the mindset and work culture in the bureaucracy, especially in administrative management (Pariso and Marino, 2020). The targets of Bureaucratic Reform are a clean and accountable bureaucracy, an effective and efficient bureaucracy, a bureaucracy that has quality public services with institutional strengthening and service management, as well as strengthening the capacity to manage public service performance (Pham and Vu, 2022). Bureaucratic reform aims to: 1) Improve bureaucratic performance to make it more effective and efficient. 2) Creation of a bureaucracy that is professional, neutral, open, democratic, independent, and has integrity and competence in carrying out its duties and responsibilities (Bhuiyan and Amagoh, 2011; El Haddad et al., 2020).

3. Method

The research method for this research is quantitative associative, the population of this study is senior immigration officers. The data analysis method uses structural equation modeling (SEM) partial least squares (PLS), the respondents for this study were 634 senior immigration office employees who were determined using the simple random sampling method—non probability sampling, the questionnaire was designed to contain statement items using a 7 point Likert scale. The respondent sampling technique used in this research was nonprobability sampling. Non-probability sampling is a sampling technique where not all members of the population have the same chance of being selected. Non-probability sampling is non-random sampling in a population. The probability of a sample being taken non-randomly is different. This non-probability sampling technique is usually used by researchers who do not know the exact population size of the object of their research. Non-probability sampling technique determines the number of samples that might represent the population. In this research, the data collection method used was an online questionnaire distributed via social media. The questionnaire contains statement items designed using a 7-point Likert scale. A closed questionnaire is a list of questions or statements that are equipped with multiple answer choices expressed in scale form. The Likert scale used in this research is (1) strongly disagree, (2) disagree, (3) quite disagree, (4) neutral, (5) quite agree, (6) agree, (7) strongly agree. Data processing in this research used SmartPLS software. The independent variables of this research are digital leadership and public service reform and the dependent variable is bureaucratic revitalization. The stages of data analysis in this research are the outer model test which includes convergent validity, discriminant validity and composite reliability as well as inner model analysis, namely hypothesis testing.

The hypothesis of this research as depicted on **Figure 1** is:

H_1: Public service reform has a positive and significant relationship to bureaucratic revitalization.

H_2: Digital leadership has a positive and significant relationship to bureaucratic revitalization.
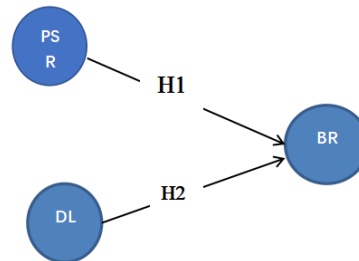
Figure 1. Research model.

The following is the operationalization of the variables to be studied, shown in **Table 1**.

Table 1. The operationalization of the independent variables.

Variable	Item	Questionnaire
Public service reform (PSR)	PSR1	Service systems, mechanisms and procedures
	PSR2	Service completion time
	PSR3	Handling complaints, suggestions and feedback
Digital leadership (DL)	DL1	Leaders accept and discuss developments in digital technology
	DL2	Leaders implement digital technology
	DL3	Leaders encourage using digital technology
Revitalization of bureaucratic (RBA)	BR1	Clean and free service
	BR2	Quality of public services
	BR3	Public service integrity

4. Result and discussion

4.1. Outer model analysis

The first stage of data analysis is outer model analysis which is an analysis of the relationship between variables and indicators, following the SmartPLS output results as in **Table 2**.

Table 2. Validity and reliability testing.

Variable	Item	Loading	CR	AVE
Public service reform (PSR)	PSR1	0.821	0.842	0.721
	PSR2	0.814		
	PSR3	0.811		
Digital leadership (DL)	DL1	0.814	0.822	0.722
	DL2	0.853		
	DL3	0.826		

Table 2. (*Continued*).

Variable	Item	Loading	CR	AVE
	BR1	0.832	0.811	0.715
Revitalization of bureaucratic (RBA)	BR2	0.812		
	BR3	0.822		

4.2. Convergent validity testing

Convergent validity testing uses the outer loading value, an indicator meets the convergent validity requirements if the outer loading value is greater than 0.70. The results of the outer loading values for all indicators in this research are shown in **Figure 2** and **Table 2**. The outer loading values for all indicators are 0.70 so that all indicators meet the requirements for convergent validity.
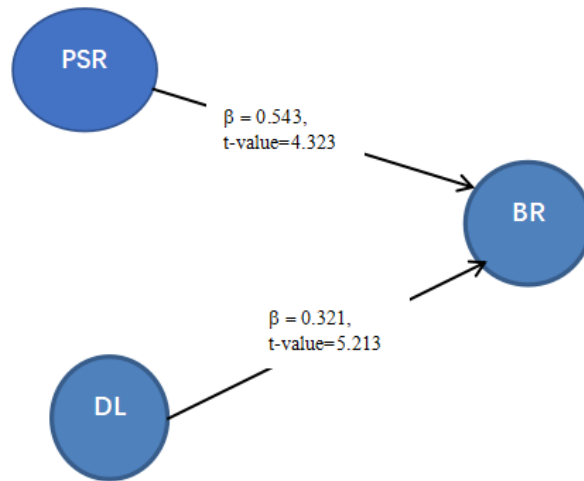
Figure 2. Hypothesis testing.

4.3. Discriminant validity testing

Discriminant validity testing is carried out by looking at the square root of the extracted average (AVE). If the square root value of AVE is greater than the correlation value between constructs then it has a good discriminant validity value. The AVE values for all variables are displayed in **Table 2**. The AVE values for all variables are greater than 0.50 so it is concluded that all variables have good discriminant validity.

4.4. Composite reliability testing

This test shows that the variables have reliability, the criterion is that variables that have a composite reliability value >0.70 are variables that have high reliability. The reliability values for all variables are shown in **Table 2**. The results of the analysis show that all variables have a high level of reliability because the composite reliability value is greater than 0.70.

4.5. Cronbach's alpha testing

This test shows that the variables have reliability, the criterion is that variables that have a Cronbach's alpha value >0.70 are variables that have high reliability. The

Cronbach's alpha value for all variables is shown in **Table 3**. The results of the analysis show that all variables have a high level of reliability because the Cronbach's alpha value is greater than 0.70.

Table 3. Cronbach's alpha testing.

Variable	Item	Loading	Cronbach's alpha
Public service reform (PSR)	PSR1	0.821	0.732
	PSR2	0.814	
	PSR3	0.811	
Digital leadership (DL)	DL1	0.814	0.712
	DL2	0.853	
	DL8	0.826	
Bureaucratic revitalization (BR)	BR1	0.832	0.713
	BR2	0.812	
	BR3	0.822	

4.6. Hypothesis test

The final stage of testing is hypothesis or significance testing to test the significance of the relationship between variables. The criteria for an acceptable relationship are if the *p* value is less than 0.50 or the *t* value is greater than 1.96. Based on the results of data analysis, it was found that the *p* value for all hypotheses was less than 0.050 and the *t* value for all hypotheses was more than 1.96, so it was concluded that there was a significant relationship.

The results of the analysis (see **Table 4**) showed that the *p* value for all hypotheses was less than 0.050 and the *t* value for all hypotheses was more than 1.96, so it was concluded that there was a significant relationship.

Table 4. Direct effect analysis.

H_s	Path	β	*p*-value	*t*-value	supported
H_1	PSR → BR	0.543	0.000	4.323	Yes
H_2	DL → BR	0.321	0.000	5.213	Yes

4.7. Correlation of public service reform (PSR) and bureaucratic revitalization (BR)

Based on the analysis results, the *p*-value was 0.000, which is smaller than 0.050, so it was concluded that there was a significant relationship. Public service reform (PSR) has a positive and significant relationship with the revitalization of bureaucratic administration (RBA). Bureaucratic reform aims to build/form: A bureaucracy clean, namely a bureaucracy that works based on rules and values that prioritize an efficient, effective and productive bureaucracy, namely a bureaucracy that can provide positive work impacts (benefits) to society and can carry out its duties precisely, carefully, efficiently and appropriately (time-saving, effort and costs). Ringson and Matshabaphala (2023) consequence then is a bureaucracy that serves the public, namely a bureaucracy that does not ask to be served by the public, but a bureaucracy

that provides excellent service to the public, and does not discriminate by carrying out social polarization. To avoid social polarization, quality public services are needed. Bhuvanij et al. (2023) argue that quality public services will be achieved with community satisfaction. Satisfaction is a comparison of the perceived performance of a result with community expectations; satisfaction is essentially related to community needs factors, meaning that if the need of society is fulfilled then the person feels satisfied, and vice versa. Yusuf et al. (2023) assert that community satisfaction can create loyalty and loyalty to the government. Thus, then public services can be said to be excellent if they have achieved optimal public satisfaction and prevented irregularities. E-government public service reform as a means of revitalization. The implementation of bureaucracy is very important to change the negative image and replace it with a better and more transparent government structure. Fishenden and Thompson (2013) affirm that E-government is an effort the use information technology that is more transparent, accountable and fair in providing better services which are in line with the hopes of all people in each region, an optimistic idea that with the implementation of e-government, it will be possible to change cultural behaviour in the bureaucracy towards a professional bureaucracy to create good governance through e-governance.

Karakose et al. (2022) proclaim that the implementation of e-governance is an application of ICTs that is different from IT. If IT has long been used in the government environment in Indonesia, now there has been a renewal, namely ICTs which can be used to facilitate and encourage a clean democratic life in government. This is because IT is only used in automating data processing which is utilized by the government internally, whereas ICTs are a supporting framework in the process of external government transformation through data processes and communications commonly known as digital connections. E-government with the use of ICTs is unlikely to discriminate in needing something because by using ICTs, who is quicker to do online e-government, whether it is done at home or the office, then he is the one who is served first because online e-government has determined the time for retrieving the files that we have put online, so there is no possibility of queuing waiting for hours or days for the files we need (Gil-Garcia, et al., 2018). For example, when someone needs a business license, the IT officer provides guidelines for filling it out at home, then uploading it and determining the time for collecting the file, so you don't have to go to the licensing service every day, this is to prevent economic inefficiency for the person concerned.

4.8. Correlation of digital leadership (DL) and revitalization of bureaucratic revitalization (BR)

Based on the analysis results, the *p*-value was 0.000, which is smaller than 0.050, so it was concluded that there was a significant relationship. Digital leadership (DL) has a positive and significant relationship with the revitalization of bureaucratic administration (RBA). Nuryadin et al. (2023) say that digital leadership is needed in the digital transformation process that the government is currently promoting to oversee change, policy making, use of technology, control and supervision. Digital leadership is needed in the digital transformation process currently underway to

oversee rapid change and use of technology in various sectors, including the government sector. The presence of a digital leader can encourage accelerated transformation within the organization. To carry out technological transformation, a digital leader must be able to use digital assets to make fast and appropriate decisions. Apart from that, digital leaders must also be able to innovate and collaborate with other organizational elements or stakeholders to find solutions. Chung et al. (2022) and Fishenden and Thompson (2013) suggest that digital leaders also have the responsibility to guide and initiate their colleagues so they can utilize information technology to realize digital transformation. With the presence of digital leadership, leaders can utilize the digital assets owned by their employees to achieve organizational goals. Digital leaders can also utilize digital technology that is connected to the business processes of each government agency in carrying out service transformation. Digital leadership or what is also known as e-leadership is digital leadership that arises as a result of the development of an electronic-based environment or e-environment. Four characteristics differentiate ordinary leadership from e-leadership**.** First, related to communication skills, where digital leaders have been able to communicate effectively using social media tools to continue to connect with members inside and outside the organization. The second characteristic, digital leaders must be able to have the ability to think and work together without the limitations of time, space, and cultural barriers where supervision and face-to-face interactions are no longer necessary. Then third, digital leaders also can monitor and manage work effectively virtually. Pham and Vu (2022) justify that the use of digital technology is currently an inseparable part of government business processes, both in central and regional agencies. The use of digital technology is realized in the transformation of public services. To keep up with changes and continue to provide excellent service, adaptability is the key to this digital transformation. To be able to adapt to changes in digital technology, this is done in four stages. First, awareness or awareness to make changes by understanding technology. Stage two, develop strategies and action plans related to technology that is suitable for use in the digital transformation process (Sagarik et al., 2018).

Digital public services are considered to have many benefits, especially for the poor quality of public services to the community (Nuryadin et al., 2023). Some of the benefits of digital public services are: First, it can reduce costs. Second, you can save time because you don't have to go directly to the government office where public services are located. Third, it is more transparent because it is done through the use of information technology so that the public knows the conditions and processes that must be followed to obtain the desired public services. Mardiana (2020) state that public services are based on the great benefits and demands of their existence changes in society in using information technology, various government organizations have begun to implement various public services digitally, the scope of which is much wider, not only to basic types of public services such as applications for certificates/administration alone but also to various aspects including public services in the health sector. Fishenden and Thompson (2013) found that many government-run hospitals already provide digital registration services for people who wish to seek treatment at these hospitals, so digital-based public services have spread from central government organizations to regional governments.

Pham and Vu (2022) make efforts to improve the quality of public services. This can also be done through increasing community participation in public service. In order to realize transparency and accountability in the implementation of public services by apparatus, developed a conception by building community involvement/participation in the implementation of public service functions to build creativity and community participation in development alongside the community can fully participate and carry out social supervision. Steps to increase community participation in public services, including: (1) Involving the community/NGOs in assessing service performance, including by forming Public Service Committee; (2) following up on public complaints regarding complaints/suggestions/opinions related to service implementation; (3) involving the community in the implementation of public services through privatization; (4) involve community participation in conducting studies/analyses of every government policy determination in the field of public services; (5) establish a community satisfaction index; and (6) counseling regarding various community service policies. Another aspect that is important in improving the quality of public service is the provision of rewards and sanctions to community service units.

Desky et al. (2020) improved service quality public is to increase the professionalism of officials in public service. Steps that must be taken in the effort to increase the professionalism of service providers, include: (1) Conducting a study/analysis of functional technical training needs by the central government and regional governments that is applicable and practical; (2) determine the authority for administering functional technical training between the central government, provincial government and district/city governments; (3) striving to develop functional positions in the public service sector; and (4) conduct comparative studies on public service delivery systems. Efforts to improve the quality of public services can also be carried out through the corporatization of public service units. Management autonomy, namely the granting of authority explicitly and clearly to certain units/work units of government agencies to carry out management operating services independently and autonomously (Khoeroni et al., 2022). Policy is intended to build and improve the performance of government organizational units, so that able to provide excellent service and choose excellence competitively, especially against work units that carry out community service functions (Bhuiyan and Amagoh, 2011).

4.9. Managerial and practical implications

To support bureaucratic revitalization, the immigration department must implement digital leadership, immigration leaders should encourage the use of digital platforms in their organizations, and support and facilitate digital transformation. Digital leadership is needed in the digital transformation process that the government is currently promoting to oversee change, policy making, utilization of technology, control and supervision. Digital public services are considered to have many benefits, especially for the poor quality of public services to the community. Some of the benefits of public service digitally, namely: First, being able to reduce costs. Second, you can save time because you don't have to go directly to the government office where public services are located. Third, it is more transparent because it is carried out

through the use of information technology so that the public knows the conditions and processes that must be followed to obtain the desired public services.

Recommendations digital leadership is a leader focused on engaging, utilizing, and handling the uncertainty of emerging technology, digital tools, and data. A digital leader is a leader who is proactive in exploring how information technology (IT) can help his organization become more responsive to customer needs, providing better products and services (or delivering them differently) and adapting to environmental changes. Leaders empower organizations to accelerate digitalization by equipping company leadership and digital teams with strategic and tactical knowledge. The immigration department should increase the revitalization of the bureaucracy, the immigration department should carry out public service reforms. Public services are to be good if they fulfill several principles of public interest, legal certainty, equal rights, balance of rights and obligations, professionalism, participativeness, equality of treatment/non-discrimination, openness, accountability, facilities and special treatment for vulnerable groups, timeliness, speed, convenience and affordability. Providing services that meet stakeholder satisfaction are carried out wholeheartedly, transparently, quickly, accurately and safely. In this regard, several efforts can be made to improve the quality of public services, including: 1) Revitalization, restructuring and deregulation in the field of public services; 2) increasing the professionalism of public service officials; 3) corporatization of public service units; 4) development and utilization of electronic-government e-government) for public service agencies; 5) increasing community participation in public services; 6) providing awards and sanctions to public service units. Before institutional revitalization and restructuring are done, then the first step that must be taken is deregulation, by reviewing and improving regulations legislation that underlies the provision of services in various regional government agencies to be further adjusted with aspirations for reform by cutting various regulations which hinders it from becoming simpler/more efficient and shorten long bureaucratic paths for convenience and smooth implementation of services. This effort, among others, also includes the establishment of various service standards and, simplification of institutions and their span of control.

5. Conclusion

The results of this research show that public service reform has a positive and significant relationship to bureaucratic revitalization and digital leadership has a positive and significant relationship to bureaucratic revitalization. Bureaucratic reform aims to build/form: a bureaucracy clean, namely a bureaucracy that works based on rules and values that prioritize an efficient, effective and productive bureaucracy, namely a bureaucracy that can provide positive work impacts (benefits) to society and can carry out its duties precisely, carefully, efficiently and appropriately (time-saving, effort and costs). The consequence then is a bureaucracy that serves the public, namely a bureaucracy that does not ask to be served by the public, but a bureaucracy that provides excellent service to the public, and does not discriminate by carrying out social polarization. Digital leadership is needed in the digital transformation process currently underway to oversee rapid change and use of technology in various sectors,

including the government sector. The presence of a digital leader can encourage accelerated transformation within the organization. To carry out technological transformation, a digital leader must be able to use digital assets to make fast and appropriate decisions. Optimizing digital-based public services in the immigration department can be carried out through several steps, including: First, efforts to develop sustainable service policies digital-based public. Second, improving the quality of government officials in the aspect of utilizing information technology. Third, procurement of facilities and infrastructure to support digital-based public services. These three efforts are expected to be able to optimize digital-based public services implemented in the immigration department so that they will not only be able to realize e-government but also be able to provide satisfaction to the public who access public services in the immigration department. For further research, conduct research on other public service organizations such as health and education, further research should use different methods, increase the number of respondents and increase the number of other variables.

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References

Asbari, M., Wijayanti, L., Hyun, C. C., et al. (2020). The role of knowledge transfer and organizational learning to build innovation capability: Evidence from Indonesian automotive industry. International Journal of Control and Automation, 13(1), 3192–333.

Avidov-Ungar, O., Shamir-Inbal, T., & Blau, I. (2022). Typology of digital leadership roles tasked with integrating new technologies into teaching: Insights from metaphor analysis. Journal of Research on Technology in Education, 54(1), 92–107. https://doi.org/10.1080/15391523.2020.1809035

Bejerot, E., & Hasselbladh, H. (2013). Forms of intervention in public sector organizations: Generic traits in public sector reforms. Organization studies, 34(9), 1357–1380. https://doi.org/10.1177/0170840613477639

Bhuiyan, S. H., & Amagoh, F. (2011). Public sector reform in Kazakhstan: issues and perspectives. International Journal of Public Sector Management, 24(3), 227–249. https://doi.org/10.1108/09513551111121356

Bhuvanij, K., Praneetpolgrang, P., & Sukvaree, T. (2023). Strategic Digital Leadership in the Private Sector for Digital Transformation Towards Enabling Sustainable Digital Economy in Thailand. International Journal of Innovation, Creativity and Change, 17(1).

Bouzas-Lorenzo, R., Buceta, B. B., & da Silva, A. F. Leadership training approaches in European civil service schools. Geopolitical, Social Security and Freedom Journal, 5(1), 52–66. https://doi.org/10.2478/gssfj-2022-0004

Cahyadi, A., & Magda, R. (2021). Digital leadership in the economies of the G20 countries: A secondary research. Economies, 9(1), 32. https://doi.org/10.3390/economies9010032

Chatfield, A. T. (2009). Public service reform through e-government: A case study of 'e-Tax' in Japan. Asymptotic and Computational Methods in Spatial Statistics, 209.

Chung, C. S., Choi, H., & Cho, Y. (2022). Analysis of digital governance transition in South Korea: Focusing on the leadership of the president for government Innovation. Journal of Open Innovation: Technology, Market, and Complexity, 8(1), 2. https://doi.org/10.3390/joitmc8010002

Desky, H., Mukhtasar, M., Istan, M., et al. (2020). Did trilogy leadership style, organizational citizenship behaviour (OCB) and

organizational commitment (OCO) influence financial performance? Evidence from pharmacy industries. Systematic Reviews in Pharmacy, 11(10), 297–305.

El Haddad, P., Auffret, J. P., & Grishina, O. (2020). Public administration reform in Lebanon from the leadership perspective. Recherches en Sciences de Gestion, (3), 341–369. https://doi.org/10.3917/resg.138.0341

Fishenden, J., & Thompson, M. (2013). Digital government, open architecture, and innovation: why public sector IT will never be the same again. Journal of public administration research and theory, 23(4), 977–1004. https://doi.org/10.1093/jopart/mus022

Gil-Garcia, J. R., Dawes, S. S., & Pardo, T. A. (2018). Digital government and public management research: finding the crossroads. Public Management Review, 20(5), 633–646. https://doi.org/10.1080/14719037.2017.1327181

Grönroos, C. (2019). Reforming public services: does service logic have anything to offer? Public Management Review, 21(5), 775–788. https://doi.org/10.1080/14719037.2018.1529879

Karakose, T., Kocabas, I., Yirci, R., et al. (2022). The development and evolution of digital leadership: A bibliometric mapping approach-based study. Sustainability, 14(23), 16171. https://doi.org/10.3390/su142316171

Khoeroni, R., Suryadi, S., & Gunawan, A. (2022). Implementation of digital leadership in the development digital competence in public services. The Management Journal of Binaniaga, 7(2), 141–156. https://doi.org/10.33062/mjb.v7i2.6

Mardiana, D. (2020). The application of digital leadership of subdistrict head on public service performance with the delegation of regent/mayor authorities as the moderating variable. Airlangga Development Journal, 4(2), 154–164. https://doi.org/10.20473/adj.v4i2.23107

Nuryadin, R., Sobandi, A., & Santoso, B. (2023). Digital Leadership in the Public Sector-Systematic Literature Review: Systematic literature review. Jurnal Ilmu Administrasi: Media Pengembangan Ilmu dan Praktek Administrasi, 20(1), 90–106. https://doi.org/10.31113/jia.v20i1.934

Pariso, P., & Marino, A. (2020). From digital divide to e-government: re-engineering process and bureaucracy in public service delivery. Electronic Government, an International Journal, 16(3), 314–325. https://doi.org/10.1504/eg.2020.108495

Pham, H. Q., & Vu, P. K. (2022). Unravelling the Potential of Digital Servitization in Sustainability-Oriented Organizational Performance—Does Digital Leadership Make It Different? Economies, 10(8), 185. https://doi.org/10.3390/economies10080185

Promsuwan, P., Wichitputchraporn, W., Niyamabha, A., et al. (2019). A Model of digital leadership development for principals of small size schools under the Office of the Basic Education Commission. Asian Political Science Review, 3(2).

Purwanto, A., Purba, J., Bernarto, I., & Sijabat, R. (2023). Investigating the role digital transformation and human resource management on the performance of the universities. International Journal of Data and Network Science, 7(4), 2013–2028. https://doi.org/10.5267/j.ijdns.2023.6.011

Ringson, J., & Matshabaphala, M. J. (2023). Leadership, Service Delivery and Managing Human Capital in the Digital Age in the Public Sector. African Journal of Governance and Development, 12(1), 62–79. https://doi.org/10.36369/2616-9045/2023/v12i1a4

Sagarik, D., Chansukree, P., Cho, W., & Berman, E. (2018). E-government 4.0 in Thailand: The role of central agencies. Information Polity, 23(3), 343–353. https://doi.org/10.3233/ip-180006

Susilawati, D. M., Suryanto, & Windijarto. (2021). Transforming the digital leadership to improve public service performance in the COVID-19 outbreak. Economic Annals-XXI, 188(3–4), 31–38. https://doi.org/10.21003/ea.v188-04

Ushaka Adie, B., Tate, M., & Valentine, E. (2024). Digital leadership in the public sector: a scoping review and outlook. International Review of Public Administration, 29(1), 42–58. https://doi.org/10.1080/12294659.2024.2323847

Utomo, H. J. N., Irwantoro, I., Wasesa, S., et al. (2023). Investigating The Role of Innovative Work Behavior, Organizational Trust, Perceived Organizational Support: An Empirical Study on SMEs Performance. Journal of Law and Sustainable Development, 11(2), e417–e417. https://doi.org/10.55908/sdgs.v11i2.417

Yunarsih, N., Rahayu, S., Sustiyono, A., Anwar, T., Sri, N., & Purwanto, A. (2020). Develop leadership style model for nurse in Indonesian hospital. Systematic Reviews in Pharmacy, 11(8).23–34

Yusuf, M., Satia, H., Bernardianto, R., et al. (2023). Exploring the role of digital leadership and digital transformation on the performance of the public sector organizations. International Journal of Data and Network Science, 7(4), 1983–1990. https://doi.org/10.5267/j.ijdns.2023.6.014