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Analysis of factors that are the challenges of digital transformation in public service complaint management through the SP4N-LAPOR! Application in the Ombudsman of the Republic of Indonesia

Dana Utama[1], Dian Indiyati[2]
Telkom University, Bandung, Jawa Barat, Indonesia[1,2]
dana.bayanaka@gmail.com[1]

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Abstract

Purpose: This study aims to analyze the challenging factors in the digital transformation of public service complaint management through the SP4N-LAPOR! Application at the Ombudsman of the Republic of Indonesia.

Methodology/approach: The research adopts a quantitative approach, collecting data through interviews and questionnaires from employees/assistant managers of SP4N-LAPOR! at the Ombudsman of the Republic of Indonesia. Exploratory Factor Analysis (EFA) serves as the analytical method to identify the primary factors influencing difficulties and challenges in the digital transformation process.

Results/findings: The analysis reveals several challenging factors in the digital transformation of managing public service complaints through the SP4N-LAPOR! Application at the Indonesian Ombudsman. The identified challenge factors, ranging from the most dominant to less prominent, include Digital Capability, Information Network Systems, Complaint Management, Digital Solutions, Leadership 4.0, Business Ecosystem, Integrated Regulation, Digital Talent, Digital Conversion and Digital Implementation.

Conclusion: Digital transformation of complaint management at the Ombudsman of Indonesia faces major challenges, notably limited digital capability (34.93%), hindering SP4N-LAPOR! implementation effectiveness and overall public service efficiency.

Limitations: This research aimed to identify factors challenging the digital transformation of public service complaint management, providing a foundation for future studies to develop effective strategies for improvement. However, the study's respondents were limited to employees or assistants of the Ombudsman of the Republic of Indonesia, restricting broader generalization.

Contribution: This article contributes to a comprehensive understanding of critical aspects essential for improving the implementation of digital transformation in managing public service complaints.

Keywords: *Complaint Management, Digital Transformation, Exploratory Factor Analysis, Public Services, SP4N-LAPOR!*

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1. Introduction

Public services are an element of the bureaucratic system that every country has. A series of activities in public service are aimed at fulfilling the rights of every citizen (Nasura, 2025). In Indonesia, the implementation of public services is an important and interesting issue to study because it involves fulfilling the rights of citizens. This is of course in line with the mandate of Law Number 25 of 2009 concerning Public Services, especially in Article 1 where public services are a series of activities in order to fulfill service needs in accordance with statutory regulations for every citizen and resident for goods, services and/or administrative services provided by public service providers. Every citizen has the right to receive quality public services. Quality service is when people get easy service with procedures that are short, fast, precise and satisfying.

In Indonesia itself, there are still many government agencies that are not optimal in providing services to the community. The quality of public services in Indonesia still needs to be improved. Indonesia's Ease of Doing Business ranking is number 73 in the world, which is behind several countries in ASEAN. Then, the results of the 2022 compliance assessment by the Indonesian Ombudsman, most of Ministries, Institutions, central and regional governments are still in the yellow zone, namely in the moderate maladministration category. The management of public service complaints encounters several challenges, including normative follow-up procedures, the archival of numerous reports deemed non-actionable, public distrust in the safeguarding of complainants' personal data by complaint service managers, lack of integration and inactivity of certain government agencies in complaint management, constrained human resources, and inadequate facilities and infrastructure (Astuti, 2022). Furthermore, there is minimal commitment from institutional leaders and regional governments, limited outreach efforts, and the continued use of disparate complaint management applications by individual agencies and regional governments.

As highlighted by Indiyati, Kurniawan, and Choirunnisa (2018), employees also express concerns about the absence of rules specifying job responsibilities, overtime regulations, and the work reporting system. Similarly by Sanjaya, Wibisono, and Sajiyo (2024), work motivation is identified as a crucial factor in achieving optimal results for employees. Addressing these challenges is vital for enhancing the efficiency and effectiveness of the public service complaint management system. In order to address the realization of quality and fair public services, the digital transformation of public services has been carried out by implementing the no wrong door policy, connecting and integrating all public service complaint managers in government agencies at both central and regional levels in Indonesia, presenting the National Public Service Complaint Management System. People's Online Aspiration Service (SP4N-LAPOR!) where the Ombudsman of the Republic of Indonesia acts as a supervisory agency or body.

President Joko Widodo in his speech at the launch of the 2021 Ombudsman of the Republic of Indonesia annual report book stated that public service is the concrete face of the state's presence in people's daily lives. The state is said to be present if it is able to provide excellent public services, which are fast, professional and fair. Realizing excellent public services requires sustainable efforts, requires system transformation, requires governance, requires a change in the mindset and work culture of our bureaucracy from a culture of being happy to be served to a culture of service. Once again, this is a big work for us together. It requires participation from all elements of society and also requires supervision from the Ombudsman of the Republic of Indonesia, both in the form of input, in the form of criticism and support so that public services in our country become increasingly high quality.

Starting from the description above, this research wants to describe the implementation of the digital transformation of SP4N-LAPOR! at the Ombudsman of the Republic of Indonesia and explains what factors challenges are in managing the digital transformation process for managing public services through the SP4N-LAPOR! application in the Ombudsman of the Republic of Indonesia is one of the dominant factors. The aim of this research is to analyze the implementation process and factors that are challenges in the digital transformation of public service management through the SP4N-LAPOR! in the Indonesian Ombudsman is one of the dominant factors. This research has the benefit of being an evaluation material for the Indonesian Ombudsman and/or the Ministry for Administrative Reform and

Bureaucratic Reform as well as Ministries/Institutions/Regional Governments in terms of managing SP4N-LAPOR!. Apart from that, it can be used as a recommendation to support the success and development of SP4N-LAPOR!.

2. Literature review

2.1. Digital Transformation

Although the specific definition of digital transformation has not been agreed upon by researchers. Almost all activity processes carried out by humans have been transferred to digital media. Digital transformation, in general, can be interpreted as a radical process that occurs in an organization in utilizing technology, human resources and business processes which causes the business performance of the organization to change drastically (Nurhikmah & Fasa, 2024). This is in line with what was conveyed by Wulandari et al. (2023) who defined digital transformation as the radical use of digital technology to improve performance or achieve company goals. Apart from that, digital transformation can be interpreted as the process of utilizing existing digital technology such as virtualization technology, mobile computing, cloud computing, integration of all existing systems in the organization and so on (Loonam, Eaves, Kumar, & Parry, 2018).

There are also those who interpret it as the impact obtained from the use of a combination of digital innovations resulting in changes to the structure, values, processes, positions or ecosystems within the organization and the environment outside the organization (Hinings, Gegenhuber, & Greenwood, 2018). The need for digital transformation in the era of technological disruption is motivated by conditions where companies are increasingly dependent on technology to make business processes and operations more efficient (Osmundsen, Iden, & Bygstad, 2018). These factors are changes in regulations, changes in the competitive landscape, shifts/changes from manual to digital forms, and changes in consumer behavior and expectations. Digital transformation is the process by which organizations adopt digital technologies to change the way they operate, interact with customers and provide added value (Norliani et al., 2024). So digital transformation can generally be interpreted as a process implemented by an organization to radically integrate digital technology in all areas of business.

Digital transformation also brings many new challenges to organizations and requires them to be more careful than in previous eras. This process can fundamentally change an organization's pattern of delivering results to customers. Companies are adopting innovative digital technologies to make cultural and operational changes that better adapt to changing customer demands (Panjaitan & Lupiana, 2023). Examples of digital transformation, namely companies starting to build digital solutions (mobile applications or electronic trading platforms), companies migrating from on-premises computer infrastructure to cloud computing, companies adopting smart sensors to reduce operating costs. The use of the term digital transformation explains the implementation of new technology, talent and processes in order to remain competitive in a technological landscape that is always changing very quickly. There is a need for digital transformation because implementing digital transformation is needed by companies to be able to increase costs and improve efficiency (Bobro, Lisova, Parfentieva, Dmytrovska, & Kyrylenko, 2025).

Digital transformation also has various benefits that can be felt by companies or organizations such as increasing productivity, improving customer experience, reducing operational costs (Pohan & Yosepha, 2025). Benefits related to increasing productivity include the emergence of cloud service technology which can save time and increase efficiency in all types of business processes. Apart from that, there is also data analytics with machine learning which can provide insights to achieve business goals more quickly. Meanwhile, the benefits related to improving customer experience are evident in the post-pandemic era, where customers want constant service availability across many channels. Apart from that, there is also a demand for websites and communications that are easy and comfortable to use on mobile devices.

Finally the benefit of digital transformation is that it reduces ongoing operational costs significantly. This can optimize existing business processes and reduce costs such as: equipment maintenance, logistics and shipping, energy costs, human resources costs and customer support costs (Yulianto &

Wulandari, 2025). In particular, cost savings due to digital transformation can help to do things like: eliminate or replace certain resource-intensive workflows, reduce costs on expensive infrastructure and equipment through managed services and cloud computing. The benefits of digital transformation above are in line with what Hendarsyah (2020) said that the benefits of transformation are to increase competitiveness, increase flexibility and market reach, as well as increase the effectiveness and efficiency of operational processes.

1. Digitization essentially refers to the process of taking analog information and encoding it into zeros and ones so that computers can store, process, and transmit this information as conveyed (Bloomberg, 2018).
2. Digitalization is defined as the utilization of digital technology to transform the socio-technical structure referring to social (human interactions, relationships, norms, etc.) and technical aspects (technology, tasks, routines, etc.) (Govers & Amelsvoort, 2023).
3. Digital technology as Hanelt, Bohnsack, Marz, and Antunes Marante (2021) identifies social media, mobile, analytics, cloud, and Internet of Things (SMACIT) as fundamental driving forces for digital business transformation.
4. Firican (2023) explain that the existence of digital culture can be recognized if there are emerging changes capable of transitioning from analog culture to digital culture, with benchmarks in the following three categories: customer and demand, organization and human resources, and attitude and work approach.
5. According to Lawrence Lessig, a law professor and activist who has contributed in the context of law and technology, the "Code" theory by Lawrence Lessig states that in the era of information and communication technology, law and technology play a crucial role in shaping and directing human life. Lessig (2009) states that: "Cyberspace teaches a new threat to liberty…Thus, four constraints regulate this pathetic dot--the law, social norms, the market, and architecture-and the 'regulation' of this dot is the sum of these four constraints. Government has a range of tools that it uses to regulate. Cyberspace expands that range. The code of cyberspace is becoming just another tool of state regulation." There are primary driving factors that he refers to as "digital transformation regulatory forces." He argues that there are four major regulatory forces that influence the behavior of individuals and companies in the context of digital transformation. The driving factors of digital transformation regulation according to Lawrence Lessig are Code, law, market, and culture. According to Lessig, these four driving factors interact with each other and mutually influence behavior and regulate digital transformation. Their influence can take place in more centralized forms such as government laws and regulations, or in more decentralized forms such as regulation through code and market forces. Lessig emphasizes the importance of understanding these regulatory forces in the context of digital transformation, so that appropriate regulations can be applied to maintain a balance between relevant interests and values, including privacy protection, security, and fairness in technology use.

2.2. E-government

*E-government*is the use of information and communication technology formed from a management system and work activities in the government environment. E-government by Irawan and Saputro (2020) states that e-government is an effort to create an atmosphere of government services that is in accordance with the common objectives (shared goals) of a number of interested communities, therefore the vision launched must also reflect the shared vision of related stakeholders, such as improving the productivity and operational performance of the government in serving the community, promoting a clean and transparent government, improving the quality of people's lives through the performance of public services, ensuring the creation of democratic state administration.

In the journal Habibullah (2010) e-government can also be understood as the use of technology based on WEB (network), internet communication and in certain cases interconnection applications to facilitate communication and expand access to and/or from government service providers and information to residents, businesses, job seekers and other governments, both institutional as well as between countries. Irawan (2017) quotes that e-government is "E-government refers to the use by government agencies of information technologies (such as wide area networks, the internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of

government". Meanwhile e-government (variablefree) according to Ayuningtiyas (2022) it is a new interaction mechanism between government, society and other interested groups which involves the use of information technology with the aim of improving the quality of services that are currently running.

The implementation of e-government innovation has been widely conducted in Indonesia, albeit with varying degrees of success. E-government implementation not only involves the use of technology but also relies on good regulations and policies. Several issues contributing to the failure of e-government development and implementation include the lack of readiness of human resources, available information technology, and insufficient attention from directly involved parties.

Presidential Instruction Number 3 of 2003 regarding the Policy and National Strategy for e-Government Development explains that there are 5 (five) success factors or readiness factors in implementing e-government in governance, namely: e-leadership, information network infrastructure, information management, business environment, and human resources.

1. E-leadership is defined as virtual leadership, which is leadership that directs people from a distance to accomplish tasks to achieve organizational goals. The strategic alignment theory by identifies four critical domains for aligning business and Information Technology (IT) strategies. The four domains driving e-leadership capabilities are Strategy execution alignment, Technology transformation alignment, Competitive potential alignment, and Service-level alignment.
2. Information technology infrastructure is a combination of a set of hardware, software, computer networks, facilities, and others (including all information technology), to develop, test, provide, monitor, and control information technology services.
3. There are several indicators that can be used to measure the quality of digital-based public services, namely Efficiency as the quality of information/service, Reliability as the accessibility of services, Trust as the extent to which services can be trusted to be safe from interference and protect personal information, and Community Support.
4. The influential factors on the success of digital businesses in achieving their business goals are Market complexity, Customer empowerment, Dynamics of digitalization and innovation, and Convergence and technology.
5. The four digital skills that need to be developed to support digital transformation in companies are digital literacy, data literacy, technical skills, and digital threat awareness.

The research model for this study is shown below in figure 1.

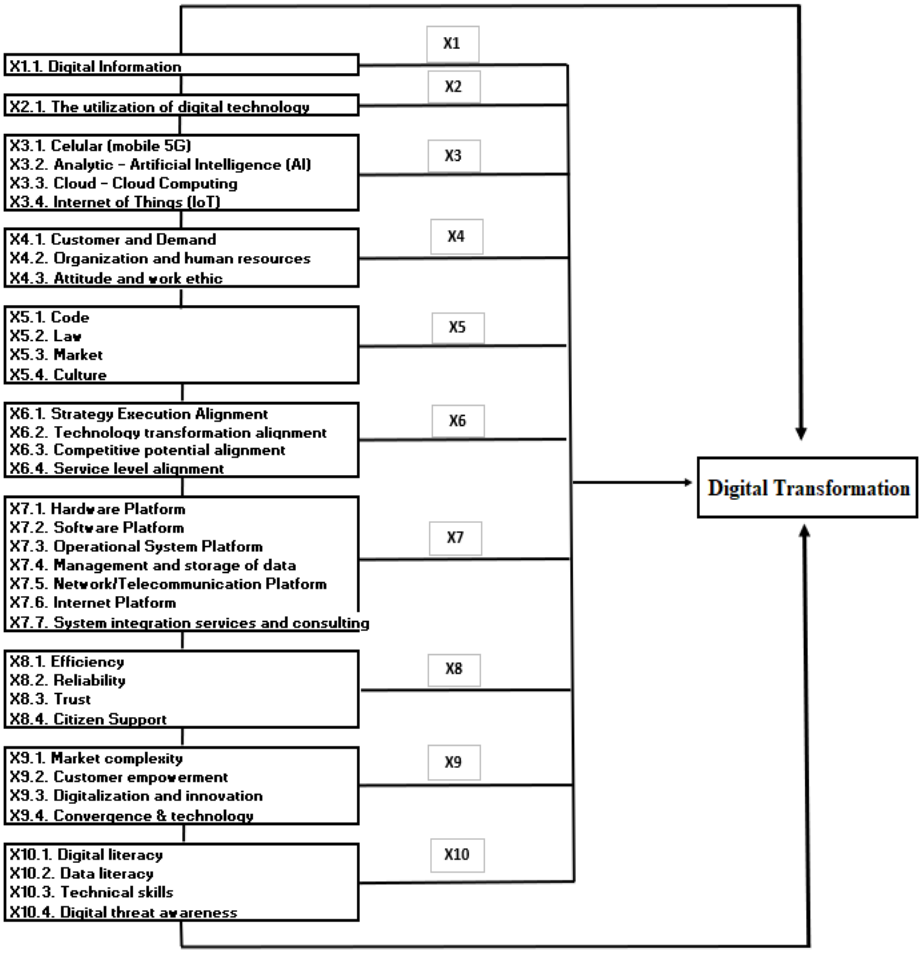

Figure 1. Research Model, 2023

3. Research methods

The research method employed in this study is a quantitative approach. According to Sugiyono (2017), quantitative research method can be defined as a research method based on positivism philosophy, used to investigate a specific population or sample, with sampling techniques generally conducted randomly, collection and use of research instruments, quantitative/statistical data analysis aimed at testing established hypotheses. Quantitative research is defined as research based on an assumption where from that assumption variables that will affect will be determined, which will then be analyzed using valid research methods. The research instrument uses a scale, specifically an ordinal scale, aimed at providing information in the form of values for responses. Certain variables can be measured by measurement instruments in the form of ordinal scale questionnaires containing Likert scale statements. The research instrument is measured using the Likert scale standard. The author's research uses a 5-point Likert scale with the following Likert scale standards:

Table 1. Linkert Scale

Value	Scale
1	Strongly Disagree
2	Disagree
3	Netral
4	Agree
5	Strongly Agree

To reveal the factors that challenge the digital transformation of public service complaint management through the SP4N-LAPOR! application at the Indonesian Ombudsman, the author uses a quantitative

approach using the Exploratory Factor Analysis (EFA) factor analysis technique. Factor analysis is a technique that looks for factors that are able to explain the relationship between various independent indicators that are observed. Through factor analysis, we can find out what factors have the most influence on the digital transformation challenges of SP4N-LAPOR! at the Indonesian Ombudsman. Determination of the number of factors is done by extracting or reducing a number of variables into a smaller set of new variables or factors.

Hair et al. (1998) mention that several approaches that can be used in determining the number of formed factors include the characteristic root approach, the percentage of variance approach (eigenvalue), and the scree test approach. The number of factors formed from this study will be determined by the approach based on the percentage value of variance or eigenvalue (the amount of variance explained by each factor) and also the scree test approach. Based on the Latent Root Criterion, only factors with a minimum latent root (eigenvalue) of 1 will be retained. This means that a factor can be considered significant if it can explain at least one variable's variation or each variable contributes a value of 1 to the total eigenvalues. Thus, only factors with eigenvalues > 1 are considered significant.

Testing is conducted for validity and reliability. In validity testing, valid means the instrument can measure what should be measured. Data obtained from the study are empirical data with specific validity criteria. Validity indicates the degree of accuracy between the actual data occurring on the object and the data that can be collected by the researcher (Sugiyono, 2017). For testing, Pearson formula is used with the following assessment standards:

Table 2. Validity Assessment Standard

Category	Value
Good	0,50
Acceptable	0,30
Margin	0,20
Poor	0,10

As for the reliability test, a reliable instrument is one that, when used several times to measure the same object, will produce the same data. The technique used is the Cronbach's Alpha technique with the following assessment standards.

Table 3. Relability Assessment Standard

Category	Value
Good	0,80
Acceptable	0,70
Margin	0,60
Poor	0,50

The calculation is computed using computer assistance with SPSS (Statistical Product and Service Solution). As defined by Sugiyono (2017), population is the generalization area consisting of objects/subjects that have certain qualities and characteristics determined by the researcher to be studied and then conclusions drawn. The population in this study consists of employees (assistants) of the Indonesian Ombudsman both at the central office and representatives spread across 34 provinces in Indonesia. The total number of employees (assistants) is 407. The sample is a part of the total and characteristics owned by the population (Sugiyono, 2017). Calculation of the appropriate sample size, one of which uses the Slovin formula, is 202 respondents. The sampling method used is Proportional Stratified Random Sampling technique. This technique is used when the population has heterogeneous and proportionally stratified members/elements (Sugiyono, 2017).

4. Result and discussion

4.1. Characteristics Respondents

4.1.1. Descriptive Statistics

The demographic information for the respondents is displayed in Tabel 1.4. The number of employees or assistants of the Ombudsman based on respondents' age in this study is 202. Out of these respondents, 62% are assistants aged 30-39, totaling 125 respondents, 22% are assistants aged 20-29, totaling 44 respondents, and the remaining 16% are assistants aged 40-59, totaling 16 respondents. According to gender, 57% or 116 respondents are male assistants and 86 respondents, or 43%, are female respondents. Based on the educational background, the employees or assistants who were respondents with a bachelor's degree amounted to 59%, totaling 119 respondents, while those with a master's degree amounted to 41%, totaling 83 respondents.

Table 4. Analysis of Demographic Profile of Respondents

Variabel	Item	Frequency	Percent
Age	20-29	44	22
	30-39	125	62
	40-59	33	16
	Total	**202**	**100**
Gender	Male	116	57
	Female	86	43
	Total	**202**	**100**
Education Background	Bachelor's Degree	119	59
	Master's Degree	83	41
	Total	**202**	**100**
Position Hierarchy	Associate Assistant	114	56
	Young Assistant	76	38
	Middle Assistant	10	5
	Senior Assistant	2	1
	Total	**202**	**100**
Length of Service	<10 Tahun	150	74
	10-20 Tahun	47	23
	>20 Tahun	5	3
	Total	**202**	**100**
Work Location	Head Office	32	16
	Representative Office	170	84
	Total	**202**	**100**

Source: Research Data of Respondents, 2023

From the questionnaire responses, 56% of the respondents hold the position of Assistant Associate, with a total of 114 respondents. 38% or 76 respondents hold the position of Young Assistant, followed by 5% or 10 respondents hold the position of Middle Assistant, and the remaining 1% are Senior Assistant, totaling 2 respondents. The distribution of respondents based on length of service indicates that 74% or 150 respondents have worked for less than 10 years, while 23%, totaling 47 respondents, have worked for 10-20 years, and the remaining 3%, totaling 5 respondents, have worked for more than 20 years. Regarding the distribution of respondents based on work location, it is found that 16%, or 32 respondents, are located at the head office, while 84%, or 170 respondents, are located at representative offices.

4.1.2. Data and Validity Test

A total of 202 questionnaires were distributed to 202 employees/assistants within the scope of the Indonesian Ombudsman. The distribution of questionnaires was carried out randomly and manually with the assistance of the Ombudsman and all questionnaires were responded to and returned. The number of samples of 202 samples has met the minimum required for carrying out factor analysis. An

item is valid if the calculated r value > r table, where the calculated r is the value in the Corrected Item-Total Correlation and the r table for the two-way test is a statistical provision with n 202 and alpha 0.05, obtaining r table of 0.138. The results of validity testing by comparing the calculated r value for each question item with the r table can be seen in the following Table 5.

Table 5. Validity and Communalities Test

Variabel	Indicators	Validity (Corrected Item-Total Correlation)		Communalities Tabel	
		R value table >0,138	Validity	Initial	Extraction >0,5
X1	Item 1	0.519	Valid	1	0,736
X2	Item 2	0.541	Valid	1	0,695
X3	Item 3	0.525	Valid	1	0,660
	Item 4	0.481	Valid	1	0,639
	Item 5	0.58	Valid	1	0,605
	Item 6	0.61	Valid	1	0,926
	Item 7	0.613	Valid	1	0,888
	Item 8	0.503	Valid	1	0,673
	Item 9	0.532	Valid	1	0,638
	Item 10	0.597	Valid	1	0,925
X4	Item 11	0.558	Valid	1	0,888
	Item 12	0.498	Valid	1	0,818
	Item 13	0.626	Valid	1	0,921
	Item 14	0.586	Valid	1	0,878
	Item 15	0.587	Valid	1	0,898
	Item 16	0.629	Valid	1	0,880
	Item 17	0.562	Valid	1	0,890
X5	Item 18	0.571	Valid	1	0,633
	Item 19	0.628	Valid	1	0,696
	Item 20	0.623	Valid	1	0,687
	Item 21	0.607	Valid	1	0,716
	Item 22	0.375	Valid	1	0,699
X6	Item 23	0.518	Valid	1	0,539
	Item 24	0.503	Valid	1	0,667
	Item 25	0.577	Valid	1	0,605
	Item 26	0.511	Valid	1	0,648
	Item 27	0.495	Valid	1	0,729
	Item 28	0.52	Valid	1	0,625
	Item 29	0.572	Valid	1	0,564
	Item 30	0.487	Valid	1	0,588
X7	Item 31	0.589	Valid	1	0,952
	Item 32	0.598	Valid	1	0,920
	Item 33	0.597	Valid	1	0,964
	Item 34	0.623	Valid	1	0,563
	Item 35	0.605	Valid	1	0,988
	Item 36	0.59	Valid	1	0,955
	Item 37	0.613	Valid	1	0,970
X8	Item 38	0.676	Valid	1	0,704
	Item 39	0.695	Valid	1	0,951
	Item 40	0.635	Valid	1	0,903
	Item 41	0.649	Valid	1	0,913
	Item 42	0.618	Valid	1	0,885
	Item 43	0.684	Valid	1	0,970
	Item 44	0.678	Valid	1	0,659

	Item 45	0.587	Valid	1	0,691
	Item 46	0.629	Valid	1	0,548
	Item 47	0.562	Valid	1	0,618
X9	Item 48	0.571	Valid	1	0,585
	Item 49	0.628	Valid	1	0,706
	Item 50	0.623	Valid	1	0,582
	Item 51	0.607	Valid	1	0,757

Source: SPSS.25 Output on Research Data, 2023

4.1.3. Reliability Test

The results of the data reliability test on 55 valid questions carried out using SPSS.25 can be seen in Table 6.

Table 6. Reliability Test Results

Cronbanch's Alpha value	Acceptable Terms	Information
0.965	0.70	Reliable

Source: SPSS.25 Output on Research Data, 2023

The results of the reliability test show that the Cronbach Alpha value is 0.963 (0>7) and it can be concluded that the instrument used is reliable with a very high reliability category > 0.8 (good). The results of the reliability test for each factor can be seen in Table 5.

4.1.4. Correlation Test Between Variables

From the test results on 55 question items, the resulting KMO Measure of Sampling Adequacy was 0.878 (>0.5) and the Bartlett test of sphericity was 0.000 (<0.05) so it was feasible to carry out further factor analysis. The test results are presented in table 7 below.

Table 7. Correlation Test Results Between Variables

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.878
Bartlett's Test of Sphericity	**Approx. Chi-Square**	13728,108
	Df	1485
	Sig.	0,000

Source: SPSS.25 Output on Research Data, 2023

Another test was carried out with anti-image matrices correlation by looking at the Measure Sampling Adequacy (MSA) value. From the test results on 55 items, all of them passed the test because they had an MSA value > 0.5 as stated in Table 8 below.

Table 8. Anti-Image Matrices Correlation Results

Item 1	**Item 2**	**Item 3**	**Item 4**	**Item 5**	**Item 6**	**Item 7**	**Item 8**	**Item 9**	**Item 10**
911a	869a	901a	838a	894a	887a	817a	876a	917a	826a
Item 11	**Item 12**	**Item 13**	**Item 14**	**Item 15**	**Item 16**	**Item 17**	**Item 18**	**Item 19**	**Item 20**
896a	921a	911a	851a	881a	844a	947a	915a	912a	932a
Item 21	**Item 22**	**Item 23**	**Item 24**	**Item 25**	**Item 26**	**Item 27**	**Item 28**	**Item 29**	**Item 30**
882a	770a	886a	844a	869a	933a	879a	833a	875a	785a
Item 31	**Item 32**	**Item 33**	**Item 34**	**Item 35**	**Item 36**	**Item 37**	**Item 38**	**Item 39**	**Item 40**
898a	919a	850a	881a	776a	811a	901a	927a	858a	891a
Item 41	**Item 42**	**Item 43**	**Item 44**	**Item 45**	**Item 46**	**Item 47**	**Item 48**	**Item 49**	**Item 50**
887a	879a	830a	913a	927a	926a	917a	926a	910a	866a

Item 51	Item 52	Item 53	Item 54	Item 55
914a	809a	874a	854a	793a

Source: SPSS.25 Output on Research Data, 2023

4.1.5. Factoring and Rotation

To perform factoring and rotation, the steps involve using analysis based on the results of the communalities table, which explains how much a variable can or cannot explain a factor. Each variable is considered capable of explaining a factor if the extraction obtained is greater than 0.5 (> 0.5). In the communalities table output in Tabel 5 above, the initial value is 1, which means that each variable is fully captured by the dimensional structure. For the extraction value, all values are greater than 0.5 (> 0.5), which means that all variables are considered capable of explaining the factor. Based on the output values in the communalities table, it can be concluded that the existing variables can be used to explain the formed factors, where the larger the communalities value, the closer its relationship with the formed factor.

4.1.6. Determination of the Number of Factors

The determination of the number of factors in this study was done in two ways. The first method involved interpreting the Scree Plot generated and using the diversity percentage approach (eigenvalue). The Scree Plot image generated from the SPSS.25 output is as shown in the Figure 2 below.

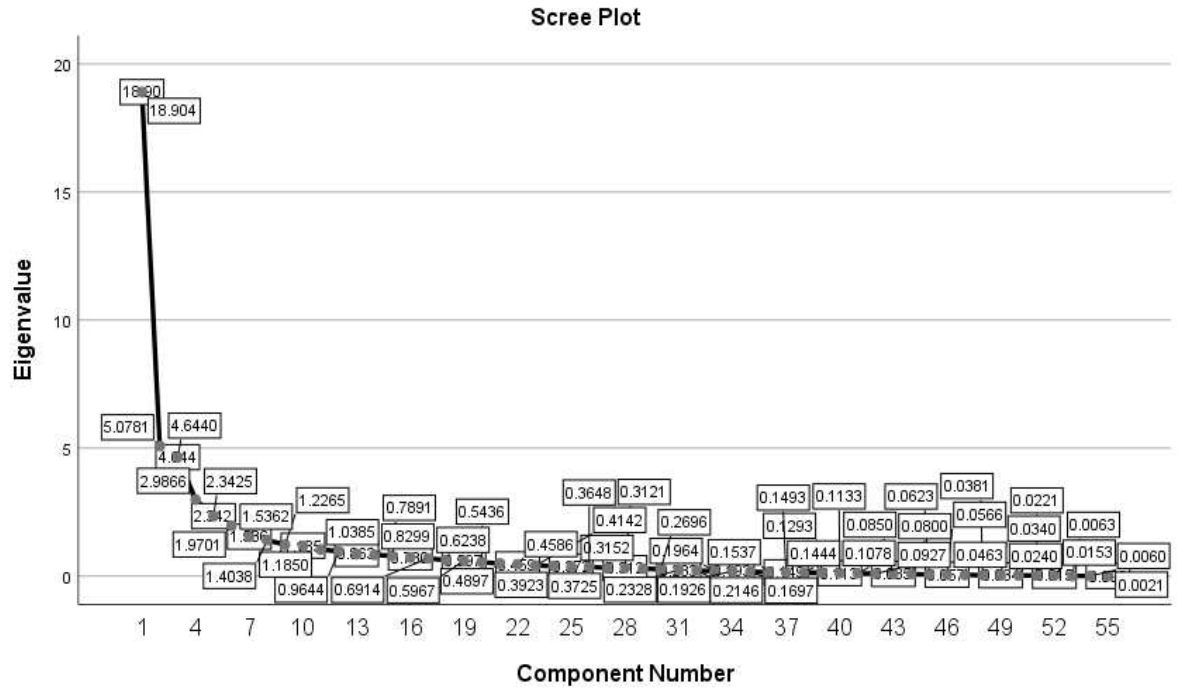

Figure 2. Scree Plot
Source: SPSS.25 Output on Research Data, 2023

The Scree Plot above illustrates the relationship between factors or variables and their eigenvalues. The number of reduced factors can be determined by drawing a horizontal line at 1 eigenvalue against the component number. The number of factors is determined from the plotted values above 1 eigenvalue >1. From the plot above, it can be observed that the curve starts to flatten with eigenvalue >1 when 10 components are formed. This indicates that 10 components or factors are the ideal number of factors causing the issue to be analyzed.

The second method involves using the total variance explained approach, i.e., the percentage of diversity or eigenvalue. The number of factors is determined by the number of variables that obtain

eigenvalues >1 after factor extraction. The total variance explained in the Tabel 9 bellow can be analyzed in two ways to explain a variance. First, through initial eigenvalues analysis. Based on the initial eigenvalues analysis, it is evident that 10 factors are formed from the 55 analyzed variables, as seen from the total eigenvalues greater than 1 (>1). Second, through extraction sums of squared loadings analysis, which indicates the amount of variation or the number of factors that can be formed. From the output table of total variance explained above, 10 factors are obtained.

Table 9. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	19,212	34,932	34,932	19,212	34,932	34,932
2	5,110	9,291	44,222	5,110	9,291	44,222
3	4,625	8,410	52,632	4,625	8,410	52,632
4	3,071	5,584	58,216	3,071	5,584	58,216
5	2,325	4,227	62,443	2,325	4,227	62,443
6	1,927	3,503	65,946	1,927	3,503	65,946
7	1,798	3,269	69,215	1,798	3,269	69,215
8	1,368	2,487	71,701	1,368	2,487	71,701
9	1,240	2,255	73,957	1,240	2,255	73,957
10	1,120	2,037	75,994	1,120	2,037	75,994
11	0,992	1,803	77,797			
12	0,949	1,725	79,522			
13	0,837	1,521	81,043			
14	0,783	1,424	82,467			
…	…	…	…	…	…	…
…	…	…	…	…	…	…
…	…	…	…	…	…	…
…	…	…	…	…	…	…
54	0,006	0,010	99,996			
55	0,002	0,004	100,000			

Source: SPSS.25 Output on Research Data, 2023

4.1.7. Distribution of Variables in Factors and Factor Rotation

After forming 10 factors, the next step is to distribute the 55 question items into the 10 factors based on their factor loadings using a rotated component matrix with the varimax rotation method so that all variables can be filled into the 10 factors that are formed optimally, and the factor matrix looks simpler. The results of factor rotation can be seen in Table 10.

Table 10. Rotate Component Matrix

	Component									
	1	2	3	4	5	6	7	8	9	10
Item1	0,194	0,149	0,216	0,014	0,280	0,156	0,127	0,132	**0,702**	-0,027
Item2	0,231	0,207	0,092	0,173	0,365	0,138	-0,014	0,088	0,098	**0,625**
Item3	0,107	0,133	0,120	**0,619**	0,341	-0,003	0,215	0,024	-0,167	0,205
Item4	0,208	0,028	0,139	**0,646**	-0,070	0,116	0,223	0,102	-0,028	0,281
Item5	0,213	0,244	0,071	**0,521**	0,061	0,129	0,389	0,057	0,005	0,220
Item6	0,237	0,138	0,286	**0,847**	0,066	0,155	-0,043	0,082	-0,006	-0,121
Item7	0,205	0,163	0,293	**0,803**	0,074	0,190	-0,030	0,115	-0,002	-0,182
Item8	0,088	0,035	0,158	**0,662**	0,212	0,035	0,007	0,055	0,332	0,203
Item9	0,049	0,239	0,128	**0,555**	0,061	0,135	0,031	0,127	0,398	0,239
Item10	0,223	0,129	0,277	**0,853**	0,075	0,150	-0,052	0,083	-0,008	-0,128
Item11	**0,888**	0,174	0,183	0,152	0,030	0,043	0,062	-0,015	0,056	-0,034

	Component									
	1	2	3	4	5	6	7	8	9	10
Item12	**0,861**	0,168	0,174	0,033	0,103	-0,003	0,055	-0,054	0,009	0,009
Item13	**0,894**	0,177	0,148	0,129	0,053	0,174	0,123	0,014	0,050	0,029
Item14	**0,856**	0,131	0,122	0,290	0,027	0,084	0,066	-0,012	0,036	0,128
Item15	**0,898**	0,166	0,129	0,135	0,073	0,132	0,053	0,008	0,011	0,054
Item16	**0,864**	0,163	0,167	0,115	0,096	0,223	0,063	0,017	0,049	0,029
Item17	**0,893**	0,169	0,062	0,156	0,092	0,070	0,091	-0,042	0,076	0,082
Item18	0,156	0,130	0,106	0,114	0,185	0,353	**0,503**	0,054	0,388	0,053
Item19	0,115	0,180	0,270	0,019	0,281	0,297	**0,604**	0,086	0,066	0,181
Item20	0,113	0,258	0,264	0,032	0,128	0,335	**0,480**	0,050	0,231	0,350
Item21	0,126	0,119	0,281	0,103	0,223	0,182	**0,674**	0,226	0,085	0,005
Item22	0,106	0,147	0,159	0,041	0,112	0,066	**0,764**	-0,061	-0,036	-0,184
Item23	0,067	0,113	0,266	0,160	**0,630**	0,063	0,137	0,020	0,037	0,071
Item24	-0,061	0,185	0,027	0,177	**0,656**	0,309	0,091	0,184	0,065	-0,159
Item25	0,119	0,221	0,089	0,065	**0,587**	0,141	0,127	0,302	0,143	0,194
Item26	0,110	-0,084	0,204	0,010	**0,633**	0,262	0,309	0,087	-0,024	0,116
Item27	0,097	0,111	0,109	0,319	**0,536**	0,133	-0,078	0,008	-0,105	0,520
Item28	0,130	0,104	0,211	0,071	**0,709**	0,028	0,080	0,122	0,145	0,032
Item29	0,088	0,170	0,286	0,005	**0,583**	0,171	0,169	0,204	0,069	0,019
Item30	-0,020	0,137	0,166	-0,030	**0,536**	0,362	-0,033	0,163	0,092	0,293
Item31	0,181	**0,925**	0,026	0,173	0,087	0,100	0,087	0,042	0,035	0,063
Item32	0,199	**0,904**	0,061	0,097	0,156	0,094	0,055	0,075	0,086	0,022
Item33	0,174	**0,929**	0,058	0,020	0,114	0,172	0,124	0,075	0,054	0,028
Item34	0,151	**0,422**	0,148	0,092	0,199	0,420	0,134	0,141	0,024	0,278
Item35	0,184	**0,947**	0,043	0,111	0,101	0,127	0,103	0,059	0,041	0,042
Item36	0,182	**0,929**	0,030	0,155	0,093	0,112	0,088	0,045	0,027	0,040
Item37	0,172	**0,933**	0,043	0,115	0,108	0,144	0,102	0,068	0,057	0,059
Item38	0,109	0,261	**0,635**	0,135	0,298	0,253	0,079	0,046	0,193	-0,066
Item39	0,179	0,040	**0,878**	0,146	0,152	0,228	0,155	0,146	0,062	0,011
Item40	0,173	0,026	**0,846**	0,344	0,129	0,062	0,106	0,029	0,002	0,076
Item41	0,160	0,015	**0,867**	0,264	0,174	0,115	0,131	0,039	0,009	0,059
Item42	0,204	-0,020	**0,861**	0,211	0,157	0,104	0,105	0,022	0,044	0,084
Item43	0,160	0,025	**0,897**	0,127	0,195	0,202	0,176	0,099	0,034	0,051
Item44	0,205	0,106	**0,556**	0,130	0,301	0,149	0,188	0,246	0,264	0,035
Item45	0,015	0,215	0,150	0,162	0,144	**0,517**	0,390	-0,027	0,390	0,049
Item46	0,106	0,122	0,184	0,124	0,120	**0,625**	0,231	0,077	0,094	-0,006
Item47	0,153	0,131	0,293	0,163	0,072	**0,550**	0,223	0,125	0,258	0,159
Item48	0,181	0,182	0,286	0,129	0,182	**0,564**	0,141	0,113	0,193	0,030
Item49	0,197	0,222	0,117	0,141	0,340	**0,665**	0,081	0,011	0,108	-0,092
Item50	0,047	0,227	0,042	0,151	0,122	**0,594**	-0,139	0,265	-0,113	0,184
Item51	0,244	0,030	0,237	0,108	0,244	**0,663**	0,261	0,191	-0,148	0,061
Item52	-0,064	0,155	0,187	0,037	0,130	0,019	0,203	**0,756**	-0,066	0,197
Item53	0,094	0,058	0,064	0,050	0,118	0,364	0,255	**0,530**	-0,237	-0,136
Item54	-0,044	0,060	0,102	0,206	0,223	0,180	-0,068	**0,815**	0,198	-0,017
Item55	-0,089	0,065	0,043	0,122	0,226	0,145	-0,058	**0,872**	0,147	0,003

Source: SPSS.25 Output on Research Data, 2023

4.1.8. Naming the Factors Formed

To give names to the factors formed as a result of matrix rotation, the ten factors are given names according to the characteristics of the question items or variables that form them. There is no standard or standard reference in naming factors, for this reason, in naming the factors that are formed, appropriate justification is needed based on the characteristics of the existing variables. After looking at the characteristics of the variables that form it, the author names the ten factors with names that can be seen in Table 11.

Table 11. Naming of the Factors Formed

Factor Formed	Factor Name	Eigen Value / Total Variance	Indicators	Factor Loading
Factor 1	Digital Capability	19,212 / 34,932%	Item 11	0.888
			Item 12	0.861
			Item 13	0.894
			Item 14	0.856
			Item 15	0.898
			Item 16	0.864
			Item 17	0.893
Factor 2	Information Network Systems	5,110 / 9.291%	Item 31	0.925
			Item 32	0.904
			Item 33	0.929
			Item 34	0.422
			Item 35	0.947
			Item 36	0.929
			Item 37	0.933
Factor 3	Complaint Management	4,625 / 8.410%	Item 38	0.635
			Item 39	0.878
			Item 40	0.846
			Item 41	0.867
			Item 42	0.861
			Item 43	0.897
			Item 44	0.556
Factor 4	Digital Solutions	3,071/ 5.548%	Item 3	0.619
			Item 4	0.646
			Item 5	0.521
			Item 6	0.847
			Item 7	0.803
			Item 8	0.662
			Item 9	0.555
			Item 10	0.853
Factor 5	Leadership 4.0	2,325 / 4.227%	Item 23	0.63
			Item 24	0.656
			Item 25	0.587
			Item 26	0.633
			Item 27	0.536
			Item 28	0.709
			Item 29	0.583
Factor 6	Business Ecosystem	1,927 / 3.503%	Item 45	0.517
			Item 46	0.625
			Item 47	0.55
			Item 48	0.564
			Item 49	0.665
			Item 50	0.594
			Item 51	0.663
			Item 45	0.517
Factor7	Integrated Regulation	1,798 / 3.269%	Item 18	0.503
			Item 19	0.604
			Item 20	0.48
			Item 21	0.674
			Item 22	0.764

Factor 8	Digital Talent	1,368 / 2.487%	Item 52 Item 53 Item 54 Item 55	0.756 0.53 0.815 0.872
Factor 9	Digital Conversion	1,240 / 2.255%	Item 1	0.702
Factor 10	Digital Implementation	1,120 / 2.037%	Item 2	0.625

Source: SPSS.25 Output on Research Data, 2023

4.2. Discussion

Based on the analysis of 55 variables using SPSS 25, the study identified 10 factors that challenge the digital transformation of managing public service complaints through the SP4N-LAPOR application. These factors include Digital Capability, Information Network Systems, Complaint Management, Digital Solutions, Leadership 4.0, Business Ecosystem, Integrated Regulation, Digital Talent, Digital Conversion, and Digital Implementation. Among these factors, Digital Capability emerged as the most dominant, with an Eigenvalue of 19.212 and accounting for 34.932% of the total variance. This finding underscores the importance of enhancing Digital Capability in public service management through the SP4N-LAPOR application to address the challenges of digital transformation effectively.

5. Conclusions

5.1. Conclusion

Factors that pose challenges in the digital transformation process of public service management through the SP4N-LAPOR! application at the Ombudsman of the Republic of Indonesia. The challenging factors generated successively from the most dominant are Digital Capability, Information Network Systems, Complaint Management, Digital Solutions, Leadership 4.0, Business Ecosystem, Integrated Regulation, Digital Talent, Digital Conversion, and Digital Implementation, which means in this study indicates that the digital transformation of complaint management at the Ombudsman of Indonesia still faces various challenges. This can hinder the efforts of the Ombudsman of Indonesia in improving the effectiveness and efficiency of public service complaint management. Based on the 10 (ten) factors outlined above, the most dominant factor posing a challenge in conducting transformation at the Ombudsman of the Republic of Indonesia is Digital Capability because it can explain 34.932% of the challenging factors that arise at the Ombudsman of the Republic of Indonesia when undergoing transformation towards the SP4N-LAPOR! application, which means digital capability at the Ombudsman of Indonesia needs to be improved. Digital capability is the ability of individuals, organizations, or society to effectively use and utilize digital technology to achieve specific goals. This includes skills, knowledge, understanding, and attitudes needed to interact with digital technology in a productive, innovative, and safe manner.

5.2. Limitations

Although this study adds value to existing knowledge to serve as an evaluation and recommendation material in the digital transformation process of public service complaint management through the SP4N-LAPOR! application, especially at the Ombudsman of the Republic of Indonesia and other stakeholders, several limitations need to be mentioned. First, the research aimed to identify the factors that pose challenges in the digital transformation of public service complaint management, so that future research can conduct more specific studies related to the appropriate and effective strategies to overcome these challenges and formulate strategies that can be implemented. Second, the respondents of the current study are limited to employees/assistants of the Ombudsman of the Republic of Indonesia.

5.3. Suggestions

For future research, comparative studies can be conducted to compare the perceptions of the Ombudsman of the Republic of Indonesia's employees with those of the public service users to obtain a broader and deeper perspective on the experiences and perceptions of the digital transformation of complaint management using the SP4N-LAPOR! application. Third, this study is quantitative and uses survey-based questionnaires to collect data; future research can employ more diverse research methods, such as mixed qualitative and quantitative methods. This can provide a more comprehensive overview

of the factors challenging the digital transformation of public service complaint management using the SP4N-LAPOR! application at the Ombudsman of the Republic of Indonesia.

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