

ARTICLE

Creating Innovation of Public Value Through Management Information Systems

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Abstract: The use of information technology cannot be escaped from everyday life in society. In the context of improving the public sector, the government is required to improve performance, responsibility, and public trust and focus more on providing better services by revitalizing public administration by increasing transparency and prioritizing service quality. The Bureau of Personnel uses the “SIMPEG” application in the form of digitizing the public sector which is considered an extraordinary opportunity to create public value. This research is focused on the approach of the SIMPEG pre and post-mobile SSO. The method adopted by this study was mixed methods. The implementation of SIMPEG mobile SSO at the Ministry of Home Affairs has fulfilled the three aspects of the public values stated by Moore, namely legitimacy and support, operational capabilities, and public value. However, based on the findings within the field, some things are still not appropriate. For example, there is still the use of paper-based administration, so that the mobile SSO service has not been optimized. Based on the dimensions of system quality, information quality, and service quality, SIMPEG based on web-based are categorized as quite sustainable, whereas after using SIMPEG mobile SSO application was classified as very sustainable. When viewed from the results of stress and RSQ values, it can be said that the results of the MDS in this study describe a good model and can represent the problems being discussed and conclude that only SIMPEG mobile SSO application is recommended for sustainability.

Keywords: legitimacy and support; operational capacity; public value; SIMPEG

1. Introduction

Along the time, information technology is experiencing rapid development. The use of information technology cannot be escaped from everyday life in society. It is very important in modern life, from personal relationships to social life and work, all integrating information technology. In addition, the advent of the internet has given rise to renewed interest in governance.

Information and Communication Technology (ICT) is a part of the human social experience that is growing rapidly (Huda & Yunas, 2016). This shows that there is a fundamental technological disruption. But, at the same time, the speed and accuracy of information could be a valuable indicator for the community.

In improving the public sector, the government is required to improve performance, responsibility, and public trust and focus more on providing better services by revitalizing public administration through digital technologies. It makes more effective the operationalization of managerial values, such as efficiency, transparency, and accountability, and also democratic values such as fairness, openness, and equality (Panagiotopoulos et al., 2019).

In this case, digital technology has an important role in increasing the operational capacity and quality of an agency/government institution, which we usually know as digital government. As explicit by Criado and Gil-Garcia (2019), a new era of technologies is altering the landscape of public management and public agencies' capacities to form public value. However, the public value should explore further the conceptual, political, organizational, managerial, and other limits on the public sphere more generally in particular circumstances (Bryson et al., 2014; Karunasena & Deng, 2012; Pena et al., 2013; Scott et al., 2016; Twizeyimana & Andersson, 2019; Valle-Cruz, 2019).

Innovation in the public sector is high on the agenda of public managers and politicians and companies, societal organizations, and citizens. Innovation is needed to address grand societal challenges, such as threats related to the introduction of new technologies. Such societal challenges question our established practices substantially. Governments are trying to tackle such issues by collaborating with other stakeholders, such as companies, citizens, and societal organizations (Bekkers & Tummers, 2018).

The Oslo Manual's general definition of innovation that applies to all economic sectors in the System of National Accounts, including the public sector, is as follows: "An innovation is a new or improved product, or process (or a combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)." (OECD, 2018, p. 60). The term 'unit' refers to the innovative organization, a business, government ministry, municipality, etc. There is no requirement in the definition for an innovation to be normatively better than existing processes or products. An innovation only needs to provide a significant change compared to what was previously in use.

Based on the Law of the Republic of Indonesia Number 5 of 2014 regarding State Civil Apparatus as the implementer of public policies and services, the government seeks to provide electronic-based services to improve public services effectively and efficiently. Utilizing advances in information technology, the government strives to provide maximum service following community expectations and has implications for high levels of satisfaction and public trust.

The development of the Personnel Management Information System (SIMPEG-KDN) is expected to be one part of implementing the merit system to run optimally. The development of SIMPEG-KDN is carried out by increasing the accuracy, completeness, and comprehensiveness, the latest (updated) of ASN personnel data and information so that it can support the ASN management of the Ministry of Home Affairs towards a merit system, one of which is reflected in good ASN management. It

is based on qualifications, competence, and performance fairly and free from political intervention.

Universally, the Personnel Management Information System (SIMPEG) concerns the planning, development, management, and use of information technology in managing personnel data and information related to ranks and positions, competency development, training, performance appraisal, career management, and dismissal and retirement management.

SIMPEG, a form of digitalization in the public sector, is considered an extraordinary opportunity to support the implementation of a merit system whose end is the creation of public value. However, the empirical problem within the Ministry of Home Affairs is the availability of two systems used, namely web-based SIMPEG and mobile-based SIMPEG, as its development.

Research into a public value was boosted by Moore’s work, where he examined the activities which add value created by public managers through public organizations (Hartley et al., 2019). Moore maintains that the strategic triangle can be considered a tool to help managers discern and create public value. Public value creation has become a general term associated with the processes of collaborative negotiation, especially between government officials and other stakeholders, directed at resolving social problems and achieving shared goals or purposes (Brown et al., 2019, p. 2).

The success of public services depends on the service provider, in this case, the professional and highly competitive state civil apparatus. Civil servants can perform their duty skillfully and professionally if they implementation the merit system (Rakhmawanto et al., 2019).

Meanwhile, the majority of governments, both at the central and regional levels, face the challenges of managing state civil apparatus and the lack of awareness that state civil apparatus is Human Capital, resulting in a mismatch between the availability of state civil apparatus and the qualifications/job specifications required.

In ensuring the efficiency, effectiveness, and accuracy of decision-making in HR management with the principle of a merit system, one of the factors is the support of an integrated information system (KASN, 2018). A series of data and information compiled in a systematic, comprehensive, and integrated manner based on technology that is easy to apply, easy to access, and has a trusted security system. Thus, a Personnel Management Information System (SIMPEG-KDN) based on SSO Mobile was built.

The Ministry of Home Affairs Personnel Bureau is one of the work units to support government affairs within the scope of State Civil Apparatus (ASN) personnel management, which is under and responsible to the Minister of Home Affairs through the Secretary-General of the Ministry of Home Affairs. The Ministry of Home Affairs' Personnel Bureau consists of 4 (four) sections in charge of managing all HR management matters, namely the personnel planning section, the career development section, the personnel transfer section, and the discipline and award section.

From the division by division in the Bureau of Personnel, with the number of state civil apparatus that consists of 104 (one hundred and four) people, they are divided into all sections and their respective sub-sections.

Table 1. Composition of the Civil Service Bureau of the State Civil Service Ministry of Home Affairs by Gender in 2020

Gender	Person	Percentage (%)
Man	56	53.85%
Woman	48	46.15%
Total	104	100%

Source: Ministry of Home Affairs Personnel Bureau, November 2020

One of the means of the Bureau of Personnel is the use of the SIMPEG-KDN application in supporting services in the form of personnel information data, and the

resulting personnel data becomes more up-to-date and accurate. This can be realized with the system's ability to input, process, and produce quality output following the Minister of Home Affairs Regulation Number 125 of 2017. The purpose of SIMPEG-KDN is to support decision-making in the implementation of Human Resource Management effectively and efficiently and to provide accurate and accountable staffing services.

However, the utilization of SIMPEG-KDN by all components/work units within the Ministry of Home Affairs has not been optimal because it takes a long time for ASN to adjust to applying SIMPEG-KDN considering that the Ministry of Home Affairs consists of 12 work units of echelon I organizations that have a total of 12 units that consists of 4808 people.

From several previous studies (Capah et al., 2018; Denaya & Djumriati, 2018; Dharmawan et al., 2019; Jurachman, 2018; Kamal et al., 2020; Nurkholis et al., 2020), The Personnel Management Information System (SIMPEG) focuses more on local (offline) and web-based hosts. The local system (offline) lacks data that is not updated, and the data can only be accessed on a local connection. At the same time, mobile has the advantage that data can be accessed by stakeholders anywhere and anytime as long as they are connected to the internet. This indicates a research gap so that this research will discuss the Mobile-based and single sign-on Personnel Management Information System (SIMPEG) as an operational capacity to encourage the implementation of the merit system in line with the creation of public value in the public sector.

This study places the State Civil Apparatus in the Ministry of Home Affairs as the main user of SIMPEG services. The mobile-based SIMPEG innovation is a form of operational capacity owned by the agency to gain legitimacy and support for the State Civil Apparatus. To answer this research, the author uses a mixed-methods approach to describe the topic of this research. Considering the above description, the researcher is interested in conducting this research focused on the Pre-and Post-SSO Mobile Personnel Management Information System (SIMPEG) approach in implementing the Merit System within the Ministry of Home Affairs.

2. Methods

This study uses mixed methods as proposed by Creswell. Mixed methods in an exploratory sequential design involve using the initial qualitative results to build a new quantitative feature - for example, an instrument, new measure, or new web-based application that will be tested quantitatively (Creswell & Plano Clark, 2018). In the first stage, the researcher collects data and analyzes it qualitatively. It is an answer to the formulation of the first research problem, namely how the legitimacy of the Personnel Management Information System in supporting the application of the merit system in the Ministry of Home Affairs is. In the second stage, the researcher collects data and then analyzes it quantitatively with multidimensional scaling (MDS) aspects in Rapfish concern aspects of sustainability from ecology, economy, technology, social, and ethics. Each aspect has attributes or indicators related to sustainability as required by FAO (1995), FAO (1999a), FAO (1999b), FAO (2001), and Pitcher et al. (1998). With Rapfish, Attributes (1998). With Rapfish, the attributes developed by Pitchert et al. (2000), which has been proven to be in line with the indicators of the FAO Code of Conduct for Responsible Fisheries (Hermawan et al., 2006), which to find out and analyze the operational capacity and sustainability of the Personnel Management Information System within the Ministry of Home Affairs as well as the answer to the formulation of the two research problems. Researchers map 7 State Civil Apparatus that will be used as informants in this study, with the classification in Table 2.

The key informant in this study is the Head of the Ministry of Home Affairs Secretariat General's Civil Service Bureau. In this study, the supporting informants are the Head of the Planning Division of the Personnel Bureau, the SIMPEG-KDN manager,

Table 2. Classification of the Number of ASN by Position

Position	Total (persons)
Echelon II	1
Echelon III	1
SIMPEG-KDN Administrator	1
Operator	1
User	3
Total	7

Source: Primary data processed by researchers

the operator as the programmer of the system development, and 3 ASN users of the SIMPEG Mobile service.

The calculation the sample of respondents in this study was 100 respondents from all State Civil Apparatuses of the Ministry of Home Affairs. This was done to facilitate data processing and testing with multidimensional scaling (MDS) to measure the personnel management information system (SIMPEG). The sample was selected using a probability sampling technique, namely simple random sampling. The researcher provided equal opportunities for each state civil apparatus to become a random sample of respondents without considering the level of position in the population in the Ministry of Home Affairs.

The Multidimensional Scaling (MDS) workflow in analyzing the sustainability of the personnel management information system includes: (1) The stage of determining the attributes of the personnel management information system, which includes the dimensions of System Quality, Information Quality and Service Quality; (2) The assessment stage of each attribute on an ordinal scale is based on sustainability criteria. For example, giving a score based on facts in the field following the established criteria with a score range between 1-4, which is categorized as unsustainable to very sustainable; (3) The results of the scoring are then analyzed using the RAPFISH program to determine the position of the sustainability status of the personnel management information system (SIMPEG) in each dimension and multidimensional which is expressed in a sustainability index value scale ranging from 0–100% as shown in Table 3.

Table 3. Sustainability Index

Index Value	Status Category
≤ 25%	Unsustainable
> 25%–50%	Less Sustainable
> 50%–75%	Quite Sustainable
> 75%	Very Sustainable

The position of the sustainability status of the personnel management information system is depicted on a horizontal line in a different ordination scale with two extreme points “bad (unsustainable)” and “good (very sustainable)”; (4) The MDS analysis includes Leverage analysis, Monte Carlo analysis, determination of stress value and the coefficient of determination. Leverage analysis goals to identify sensitive attributes and to identify interventions that can be performed on sensitive attributes to improve the sustainability status of a program/system. Monte Carlo analysis aims to determine the accuracy of the results. Later the difference between the MDS and Monte Carlo results will describe the confidence range. If the difference between the MDS and Monte Carlo results is <1, it can be said that the sustainability index obtained is above 90%. The purpose of the Stress Value and Determination coefficient (R2) is to determine whether or not it is necessary to add attributes to the dimensions studied accurately (close to the real situation). The lower or closer to 0 the magnitude of the

stress value, the better the MDS model. The coefficient of determination (R2) is good if the value is getting bigger or closer to 1.

The conceptual framework describes the researcher’s line of thinking in formulating steps related to what variables have been determined and based on the theories that become the basic reference that has been integrated concerning the research problems taken. The researcher found an idea to be researched and studied further from this process.

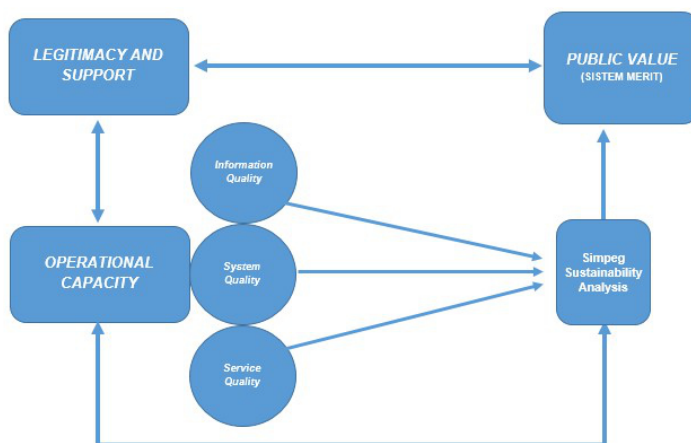


Figure 1. Research Concept Framework

The focus of this research lies in the legitimacy and operational capacity of the Personnel Management Information System (SIMPEG), which includes Information Quality, System Quality, and Service Quality as proposed by DeLone and McLean (2016) whose estuary is the creation of public value as Moore (2013) argues about the model public value triangle. By using these 3 (three) dimensions, researchers can analyze the sustainability of the information system by using the Multidimensional scaling of the Web-based SIMPEG and mobile-based SIMPEG used in the Ministry of Home Affairs environment so that they can compare the similarity and dissimilarity of each SIMPEG.

3. Results and Discussion

The implementation of the mobile-based SIMPEG program at the Ministry of Home Affairs is analyzed from a qualitative and quantitative perspective. The information obtained in this study is from observation, documentation, interviews, and distributing questionnaires.

A research site is a special place planned by researchers to collect research data through interviews, observations, and distributing questionnaires. The places planned by the researcher include the office of the personnel management officer, the assessment center room, the data room of the Ministry of Home Affairs' Civil Service Bureau, and other places. The following is the presentation: (1). According to Moore (2013). Legitimacy and support are considerations in implementing a policy in the public sector in support of applicable regulations. A public organization will not create a public value if it does not get support and power in the form of regulations agreed by the authorities. The public value of the SIMPEG service innovation used by ASN to facilitate data integration is to analyze the supporting aspects through Law Number 25 of 2009 regarding public services and Law Number 5 of 2014 regarding State Civil Apparatus. Based on the results of field findings from the Head of the Secretariat General of the Ministry of Home Affairs Personnel Bureau. Socialization of the SIMPEG Mobile application has been carried out in various ways, namely through direct socialization to ASN from various division levels, through banner installations, and social media owned by the Ministry of Home Affairs. Then the writer summarizes the opinion of the informants. The following is a summary of the interview data.

Table 4. Legitimacy and Support Interview Results Information Quality Dimension

Information Quality	
Indicators	Description
Relevance	I prefer to use the mobile-based SIMPEG application instead of a local host because it is very helpful for staffing and complete information on performance achievements.
Usefulness	In my opinion, as a user of the SIMPEG mobile-based service innovation, it provides easy access to performance achievements without having to print on paper (paperless). However, not all information is summarized in digital form, and there is still something that must be printed on paper.
Accuracy	I use the SIMPEG mobile application because it is easier to access information about some of the work and services that I will be doing.
Punctuality	Employee data in the SIMPEG mobile application is always updated to avoid mistakes.

Source: Interview Result Data (Processed)

Table 5. Legitimacy and Support Interview Results System Quality

System Quality	
Indicators	Description
Availability	I hope that this mobile-based SIMPEG service innovation is expected to provide personnel information correctly according to the given procedure.
Ease of Use	The SIMPEG service is easier to use because it is mobile-based, so users can directly download the application on their respective mobile phones.
Response Time	Users are happy with the innovative services from mobile-based SIMPEG because it makes it very easy to access information and can evaluate the time limit for service delivery.
Trust and Security	The SIMPEG mobile application is designed to provide a sense of security to users, especially in storing personal data that is private. In addition, the importance of protection offered by the provider is expected to foster trust in the provider in managing the SIMPEG application.
Reliability	The mobile-based SIMPEG application is practical and convenient, as it is easily accessible and responsive.

Source: Interview Result Data (Processed)

Table 6. Legitimacy and Support Interview Results Service Quality Dimension

Service Quality	
Indicators	Description
Customer Support	Users feel that the SIMPEG mobile application provides excellent service because it provides communication services when problems occur when accessing the application.
Transparency of Action	The SIMPEG service innovation provides convenience in the form of transparent user performance, thereby minimizing fraud in the future.
Complaint	Complaints about the mobile-based SIMPEG application service are handled well so that users are satisfied with the application.
Customization	The mobile-based SIMPEG application provides several features that make it easier for users to manage information regarding personnel data.

Source: Interview Result Data (Processed)

Thus, the innovation of mobile-based SIMPEG service carried out by the Ministry of Home Affairs can be said to meet the aspects of legitimacy and support from users. It can be seen from the answers of informants that the SIMPEG mobile application is managed very effectively, both in terms of leadership policies and managers (programmers and operators), to get support from service users; (2). According to Moore (2013), Operational Capacity is considered in measuring performance in the public sector. Exertions to reinforce the internal aspect of the organization are to

enhance administrative facilities. Not only that, for members of a public organization, it is important to gain organizational learning through organizational performance appraisal. So far, the ability of human resources in implementing SIMPEG innovation service operations is adequate because these human resources have competence in their field and work following SOP (Standard Operational Procedure), which requires officers to have the following qualifications: (i) Have data processing capabilities; (ii) Know the personnel information system; (iii) Know the duties and functions of the mechanism in reporting; (iv) Focus and can work quickly and accurately. The programmers and operators who work for SIMPEG mobile services are reliable human resources and know their respective duties and responsibilities. Not only that, but the programmers can also analyze systems and design user interfaces.

Table 7. Interview Results Operational Capacity Information Quality Dimension

Information Quality	
Indicators	Description
Relevance	I think employee data in the form of performance achievements are processed properly to provide results considered for future positions.
Usefulness	Users can access mobile-based SIMPEG anywhere and anytime.
Accuracy	The features in the SIMPEG mobile service application provide different information so that the information is accurate according to the title of the features in the service.
Punctuality	Staffing data is input based on daily reports, so the operational data in the SIMPEG mobile application is updated every day.

Source: Interview Result Data (Processed)

Table 8. Interview Results Operational Capacity System Quality Dimension

Quality System	
Indicators	Description
Availability	The mobile-based SIMPEG application service provides easy access to daily information, such as attendance, daily reports, and announcements at certain events.
Ease of Use	The mobile-based SIMPEG service provides a friendly user interface that is easy to use.
Response Time	The mobile-based SIMPEG application responds quickly because it has a light capacity; therefore, even with low-spec devices, the application is still comfortable to use
Trust and Security	The mobile-based SIMPEG application is designed to separate public and private information according to the users' needs.
Reliability	The mobile-based SIMPEG application has gone through the quality assurance stage to minimize problems in the application.

Source: Interview Result Data (Processed)

Table 9. Interview Result of Operational Capacity Customer Quality Variable

Service Quality	
Indicators	Description
Customer Support	Customer support provides service support in answering users' questions about the mobile-based SIMPEG application according to office operating hours.
Transparency of Action	Mobile services in the SIMPEG application provide transparent data to reduce collusion, corruption, and nepotism within the Ministry of Home Affairs.
Complaint	The Complaint Service from mobile-based SIMPEG is intended to deal with problems in access, information input errors, and provide criticism and suggestions for the application service.
Customization	The mobile-based SIMPEG application provides data and can process data and data accuracy to obtain the desired information for decision making.

Source: Interview Result Data (Processed)

From the results of these interviews, mobile-based SIMPEG services organized by the Ministry of Home Affairs can be concluded to meet the operational activities aspect. A reliable and competent workforce supports the SIMPEG service; (3). According to Moore (2013), public value is the goal to be achieved by public organizations. This goal is realized by improving performance and using performance measurement that forces a public organization or government to do more concrete work that leads to a merit system.

Table 10. Results of Public Value Interviews in Merit System Implementation

Dimension	Description
Information Quality	The online-based SIMPEG presents a working map. The employee needs a plan for the medium term of 5 (five) years according to the organization's strategic plan's number, position, rank, qualification, competence, and work unit.
	The online-based SIMPEG provides a complete and up-to-date employee database organized by number, position, rank, work unit, qualifications, and competence.
	The online-based SIMPEG provide a database of employees who will enter retirement in 5 (five) years which is arranged by number, position, rank, and work unit.
System Quality	The online-based SIMPEG presents employee profiles through talent mapping carried out by an accredited assessment agency or certified assessor team.
	The online-based SIMPEG presents information about developing a talent pool and succession plan based on ASN profiles taking into account the agency's career pattern.
	The online-based SIMPEG presents qualification and competency gaps by comparing employee profiles and job competency standards.
	The online-based SIMPEG presents performance gaps by comparing expected and actual performance.
	The online-based SIMPEG presents the Application of objective and measurable performance appraisal methods. The online-based SIMPEG presents performance appraisal results as the basis for determining management decisions related to career development and development (promotions, transfers, demotions, rotations, training).
Service Quality	The online-based SIMPEG presents information about analyzing performance problems and strategies for solving them to achieve organizational goals.
	The online-based SIMPEG presents information about data management related to disciplinary violations, violations of the code of ethics, and code of conduct by ASN employees.
	The online-based SIMPEG presents information about internal agency policies related to implementing the procurement of ASN employees in an open, competitive, transparent, and non-discriminatory manner.
	The online-based SIMPEG presents facilities that provide convenience for ASN employees who need administrative services. The online-based SIMPEG presents the development and use of assessment centers in mapping competencies and filling positions based on information technology.

Source: Interview Result Data (Processed)

Thus, it can be concluded that the mobile-based SIMPEG service has fulfilled the public value aspect according to the purpose of implementing the service. The SIMPEG mobile application is very helpful in providing information for users, namely state civil apparatus. Users can find various kinds of information to support their performance improvement that leads to a merit system.

3.1. Quantitative Analysis

3.1.1. Dimensions of Information Quality

Based on the results of the RAPFISH analysis, which was strengthened by the MONTE CARLO analysis, the value of the sustainability status of the information quality dimension in the implementation of web-based SIMPEG implementation efforts is 61.07, and the use of mobile SSO-based SIMPEG with a value of 71,98 (Figure 2 and 3). This describes that using SIMPEG based on web-based is categorized as quite sustainable. In contrast, the quality of information on using SIMPEG based on mobile SSO is categorized as quite sustainable.

Based on the results of LEVERAGE analysis on the dimensions of information quality, the two main attributes with high contribution values are the punctuality attribute which has an influence (standard error) of 4.72, and the relevance attribute with a value of 2,99 (Figure 4). In formulating policies, efforts to improve the sustainability status of the information quality dimension need to pay attention to and consider these two attributes. The level of punctuality and relevance in implementing the mobile-based SIMPEG application contributes to the sustainability status, so efforts need to be made to maintain it. On the other hand, the level of usefulness and accuracy contributes very little to improving the sustainability status of the information quality dimension, so efforts are needed to develop these two attributes.

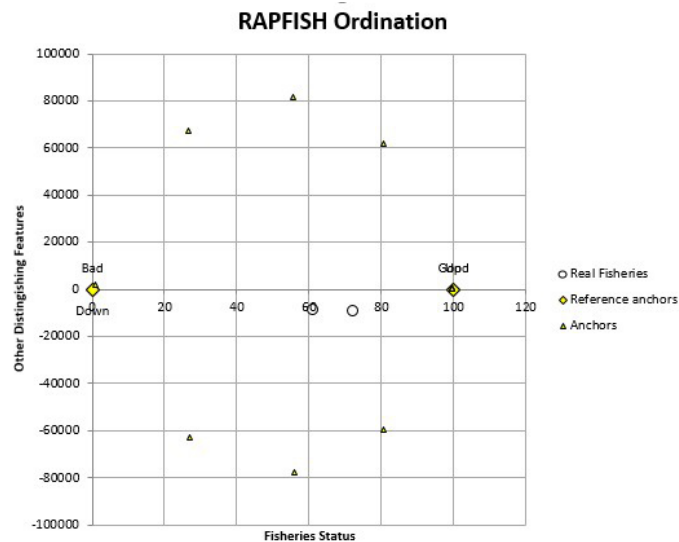


Figure 2. The Position of the Sustainability Status of the Information Quality Dimension in the Implementation of the SIMPEG Mobile Application Based on RAPFISH Analysis

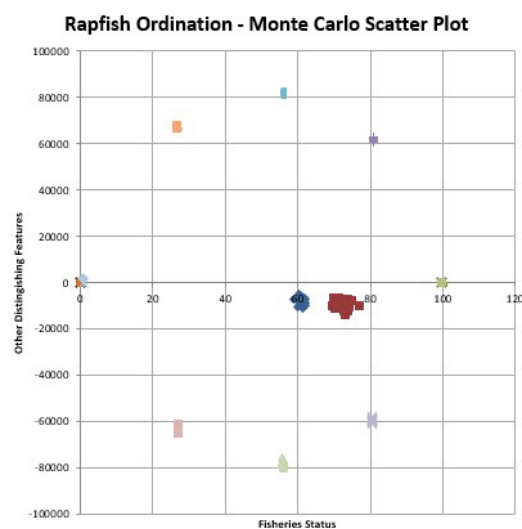


Figure 3. The Position of the Sustainability Status of the Information Quality Dimension in the Implementation Before and after the Use of the SIMPEG Mobile Application Based on the MONTE CARLO Analysis Test

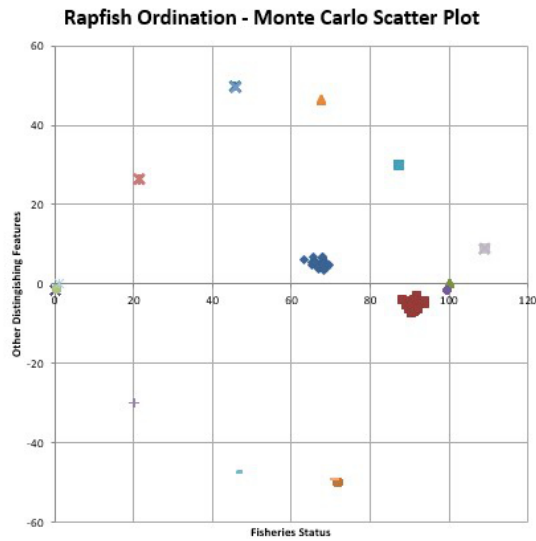


Figure 6. The Position of the Sustainability Status of the System Quality Dimension in the Implementation Before and after the Use of the SIMPEG Mobile Application Based on the MONTE CARLO Analysis Test

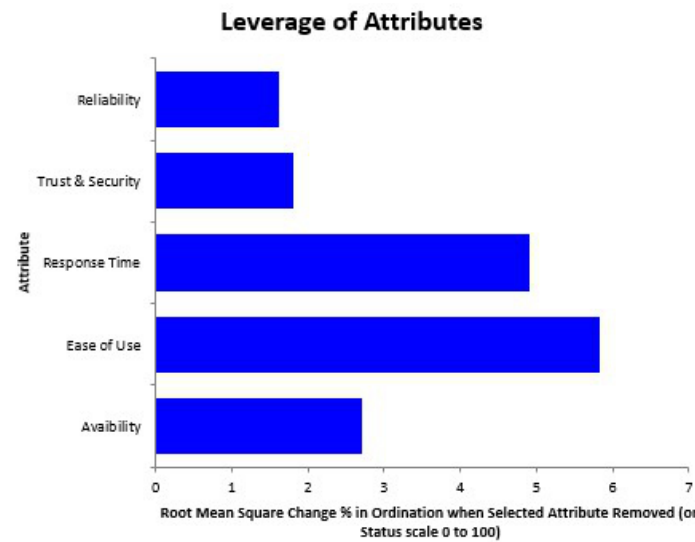


Figure 7. The Results of LEVERAGE Analysis on the Dimensions of System Quality

3.1.3. Dimensions of Service Quality

Based on the results of the RAPFISH analysis, which is strengthened by the MONTE CARLO analysis, the value of the sustainability status of the service quality dimension in the implementation of web-based SIMPEG implementations is 59,64 mobile SSO-based SIMPEG implementation is 80,67 (Figure 8 and 9). Those describe that the quality of service using SIMPEG based on web-based is categorized as quite sustainable, while the quality of service using SIMPEG based on mobile SSO is categorized as very sustainable.

Based on the results of LEVERAGE analysis on the dimensions of service quality, the two main attributes with high contribution values are the transparency of action attribute, which has an influence (standard error) of 4,59, and the complaint with a value of 4,18 (Figure 10). In formulating policies, efforts to improve the sustainability status of the service quality dimension need to pay attention to and consider these two attributes. The level of customer support and customization is sufficient to improve the sustainability status of the service quality dimension, but efforts are needed to develop these two attributes.

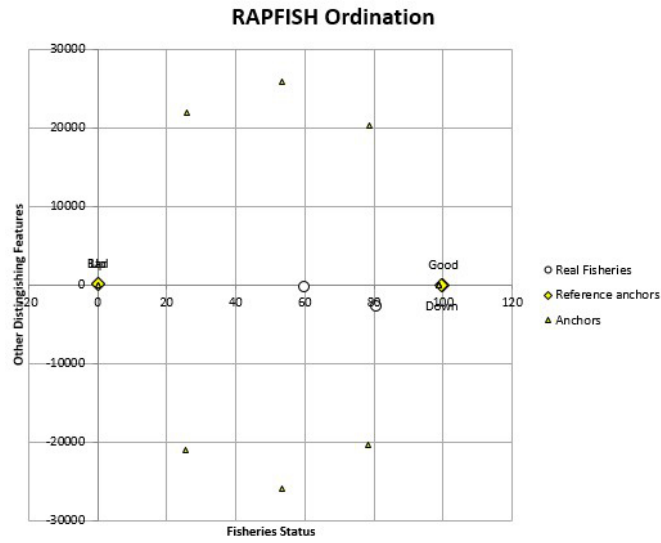


Figure 8. The Position of the Sustainability Status of the Service Quality Dimension in the Implementation of the SIMPEG Mobile Application Based on RAPFISH Analysis

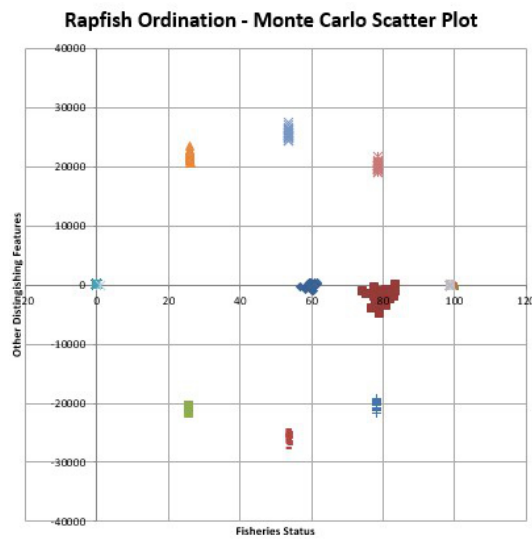


Figure 9. The Position of the Sustainability Status of the Service Quality Dimension in the Implementation Before and after the Use of the SIMPEG Mobile Application Based on the MONTE CARLO Analysis Test

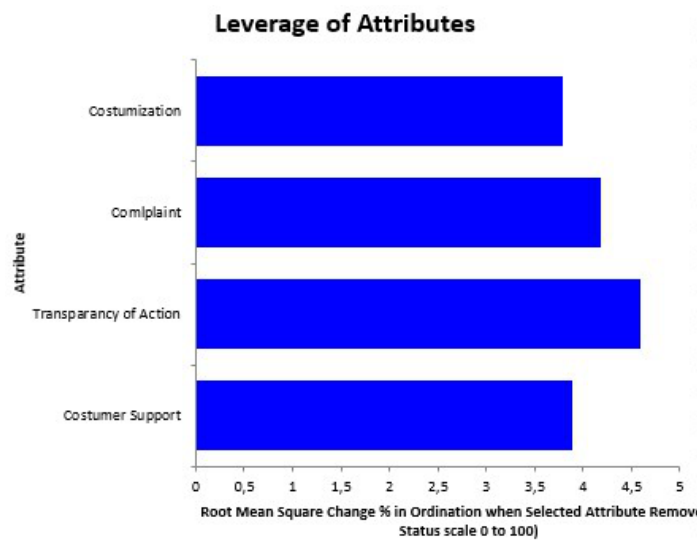


Figure 10. The Results of LEVERAGE Analysis on the Dimensions of Service Quality

3.1.4. Stress and Squared Correlation Value

The value of stress and squared correlation (RQS) in the RapAnalysis sheet shows the results of Goodness of fit from the results of multidimensional scaling.

Figure 11. Stress and Squared Correlation (RQS) Values

Stress =	0,1562173		
Squared Correlation (RSQ) =	0,8823002		
Number of iterations =	4		
Memory needed (words) =	5022		
Rotation angle (degrees) =	99,58094		

The stress value in this study was 0.1562173 with an RSQ value of 0.8823002. A good model is indicated by the S-Stress value, which is smaller than 0.25, and the RSQ close to 1.

3.1.5. Sustainable Analysis

The difference between Monte Carlo and MDS reflects the sustainability status. The difference value <1 indicates that the value of the sustainability index status at the confidence interval according to the RSQ value obtained results that did not experience much difference.

Table 11. Sustainable Value Index Analysis

	SIMPEG web-based	SIMPEG based-SSO Mobile
Monte Carlo Result	71,66498	85,99969
MDS Value	72,90621	86,77962
Difference	1,24123	0,77993

Source: Processed results (2021)

Table 11 shows that the difference in MDS values for web-based SIMPEG services is 1.24123 and SIMPEG services based on mobile SSO is 0.7793. This value reflects that the SIMPEG mobile application has sustainable value.

4. Conclusion

Based on the findings in the field, the implementation of SIMPEG based on mobile SSO at the Ministry of Home Affairs has fulfilled the three aspects of the public values stated by Moore, namely legitimacy and support operational capabilities and public values, which emphasize the merit system. These three aspects have an important role in forming the public value of a service. However, in line with the findings in the field, some things are still not appropriate. For example, the use of paper-based administration is still applied, so the mobile SSO service has not been optimized.

Based on the dimensions of information quality, system quality, and service quality, SIMPEG applications based on web-based at the Ministry of Home Affairs are categorized as quite sustainable (scores between 50-75), whereas after using SIMPEG applications based on mobile SSO at the Ministry of Home Affairs usage status is categorized as very sustainable (score between >75).

Of the three dimensions, the main attributes with high contribution values include relevance, punctuality, ease of use, response time, complaint, and transparency of action.

When viewed from the results of stress and RSQ values, it can be said that the results of the MDS in this study describe a good model and can represent the problems being discussed. The difference between MDS and Monte Carlo scores from web-based SIMPEG applications and mobile SSO-based SIMPEG applications at the Ministry of Home Affairs concludes that only SSO-based mobile SSO-based SIMPEG applications are recommended for sustainability.

The implementation of the mobile-based SIMPEG application is expected to increase socialization to achieve maximum ASN performance so that SIMPEG managers can take policies by focusing more on attributes that have a high

contribution value without ignoring other attributes. Priority efforts that need to be implemented include: (1). Provide relevant and timely information; (2). Create features in the mobile-based SIMPEG application by implementing a friendly user interface; (3). Creating a responsive application system; (4). Provide services that are easily accessible to all users; (5). Provide complaint services for users when problems are accessing the SIMPEG application.

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