

The Role of Service Accessibility in Mediating the Influence of Service Innovation on Public Satisfaction at the Population and Civil Registration Office of Medan City

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Abstract

Population administration services require fast, accurate, and easily accessible processes. This study examines the effect of service innovation on public satisfaction with service accessibility as a mediating variable at the Population and Civil Registration Office of Medan City. The research design is a quantitative cross-sectional study with a survey of 96 respondents (sample size determined using Cochran's formula). Model testing was conducted using PLS-SEM (SmartPLS) from July to October 2025. The instruments met convergent validity (outer loading ≥ 0.70) and high reliability (Composite Reliability: satisfaction 0.961; accessibility 0.935; innovation 0.943; AVE respectively 0.830; 0.741; 0.768). The model's explanatory power is strong: R^2 accessibility = 0.822 and R^2 satisfaction = 0.829. Path results show that innovation \rightarrow accessibility is significant ($\beta=0.907$; $p<0.001$), innovation \rightarrow satisfaction is significant ($\beta=0.386$; $p=0.015$), and accessibility \rightarrow satisfaction is significant ($\beta=0.546$; $p<0.001$). The indirect effect test confirms the mediation of accessibility in the relationship between innovation \rightarrow satisfaction ($\beta=0.495$; $p<0.001$). The findings confirm that service accessibility is a key mechanism that translates innovation into higher satisfaction. Practical implications suggest prioritizing innovations that directly improve access (e.g., online queuing/tracking, multi-platform channels, and service hour adjustments), accompanied by strengthening performance monitoring based on time indicators and procedural ease so that the benefits are felt equally by citizens.

Keywords: Service Innovation, Service Accessibility, Public Satisfaction

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Introduction

Population administration services are one of the most strategic public services in fulfilling the basic rights of citizens. In large cities such as the Medan City Population and Civil Registration Office (Disdukcapil Kota Medan), the challenges faced are not only related to the speed and accuracy of services, but also how easy it is for the community to access these services. According to the Organisation for Economic Co-operation and Development (OECD) (2024), accessibility to essential services includes physical ease, time, cost, and digital channels, which are prerequisites for the benefits of services to be truly felt by the wider community. This shows that even if service procedures and resources have been improved, if accessibility is not optimal, the effectiveness of services will be limited.

Along with this, innovations in public services such as streamlining processes, utilizing digital technology, and developing more flexible service methods have gained significant attention. Several recent studies in Indonesia show that service innovation significantly improves public satisfaction. For example, a study by Kurnia, Mukson & Fuaddi (2024) on services in the population registration environment in the city of Pekanbaru found that service innovation has a significant positive effect on public satisfaction. However, other studies show that the existence of innovation alone does not guarantee the highest level of satisfaction if accessibility remains a barrier. Santoso et al. (2023) refer to the "public service innovation paradox" where innovation is available, but its implementation and accessibility are not yet optimal, so its impact on service quality is not maximized.

In the context of the Medan City Population and Civil Registration Office, which serves a highly mobile population with diverse characteristics, a service model that relies solely on innovation without considering accessibility may encounter obstacles. Service accessibility here includes ease of procedure, inclusive digital channels, fast response times, and the ability of the community to access services both in person and online. Research on the accessibility of public services in Indonesia shows that these aspects greatly influence citizens' perceptions of quality and satisfaction (see examples of studies on digital inclusion and e-government in Padang, Rusnita et al., 2024). Thus, it is worth questioning the extent to which accessibility plays a mediating role in the relationship between public service innovation and community satisfaction at the Medan City Disdukcapil.

Based on these conditions, this study aims to examine the effect of service innovation on public satisfaction through the mechanism of service accessibility at the Population and Civil Registration Office of Medan City. This model not only contributes academically to the literature on public services but also leads to more focused policy recommendations: namely, ensuring that service innovations are not only developed but also supported by adequate accessibility so that the public truly feels an improvement in service quality.

Literature Review

2.1 Public Satisfaction

According to Vera & Trujillo (2021), public satisfaction is a state in which the public's assessment or perception of the services they receive is in line with their expectations. Satisfaction is not only measured by the results of the services provided, but also by the experience during the process of receiving services, such as the attitude of the staff, speed of service, ease of procedures, and a sense of fairness in obtaining services.

2.2 Indicators of Public Satisfaction According to Vera & Trujillo

1. Alignment of Services with Expectations

Satisfaction arises when the services received meet or exceed public expectations. The smaller the gap between expectations and reality, the higher the level of satisfaction.

2. Quality of Service Interaction

Emphasizing the attitude of officers in providing services, such as friendliness, empathy, politeness, communication skills, and attention to the community. Humanistic services increase satisfaction.

3. Ease of Procedures

Service is considered satisfactory if the process is straightforward, requirements are clear, the flow is easy to understand, and access to services is easily accessible to the community.

4. Speed and Accuracy of Service

Community satisfaction is influenced by fast service completion times and accurate results, without errors or repeated revisions.

5. Fairness and Transparency

Services are considered satisfactory when the public feels that they are treated fairly, without discrimination, and when information about costs, timeframes, and procedures is communicated openly.

2.3 Service Accessibility

According to the Organisation for Economic Co-operation and Development (OECD) (2024), essential service accessibility is defined as the ability of residents to access important services (basic education, employment services, ECEC, etc.) with a strong focus on physical accessibility for example, travel time to reach service units and its role in social inclusion and welfare.

2.4 Service Accessibility Indicators

1. Physical Accessibility

The ease with which people can reach service locations geographically, including distance, environmental conditions, and availability of physical facilities (e.g., disability access, parking, ramps, elevators).

2. Access Time and Speed

The suitability of service hours, queue length, and service speed to the needs of the community. The faster and more flexible, the higher the accessibility.

3. Cost Affordability

How affordable the cost of services is for all community groups, including low-income groups. Access to services is considered good if it is not a financial burden.

4. Ease of Process and Requirements

The level of simplicity of the service process, clarity of requirements, and minimal bureaucracy. A service is considered accessible if it is straightforward to understand.

5. Digital Access and Technology

The availability and ease of access to technology-based services, such as service applications, websites, and online portals, including accessibility for people with digital disabilities.

6. Equality and Inclusion

Services are accessible to all segments of society, without discrimination, including persons with disabilities, the elderly, remote communities, and other vulnerable groups.

2.5 Service Innovation

According to Ali et al. (2021), service innovation is an organization's effort to create, develop, or improve service processes, work methods, technology, and ways of interacting with users to enhance the value, quality, and experience of services. Service innovation focuses on how organizations adapt to changing community needs and deliver services that are more effective, faster, easier, and more relevant.

2.6 Service Innovation Indicators

According to Ali et al. (2021), indicators of service innovation include:

1. Development of New Services

Organizations are able to create new forms of service that did not previously exist to respond to community needs.

2. Improvement in Service Process Quality

Innovation is evident in improved workflows, the elimination of complicated procedures, and the simplification of service processes.

3. Use of Technology

The use of digital systems, applications, online services, or technology-based tools to accelerate and facilitate services.

4. Creativity of Officials/Staff

Employees can think creatively to find service solutions and implement more effective ways of working.

5. Responsiveness to Community Needs

Innovation is directed at meeting the needs of society quickly, accurately, and in a manner that is relevant to actual conditions.

2.7 Conceptual Framework

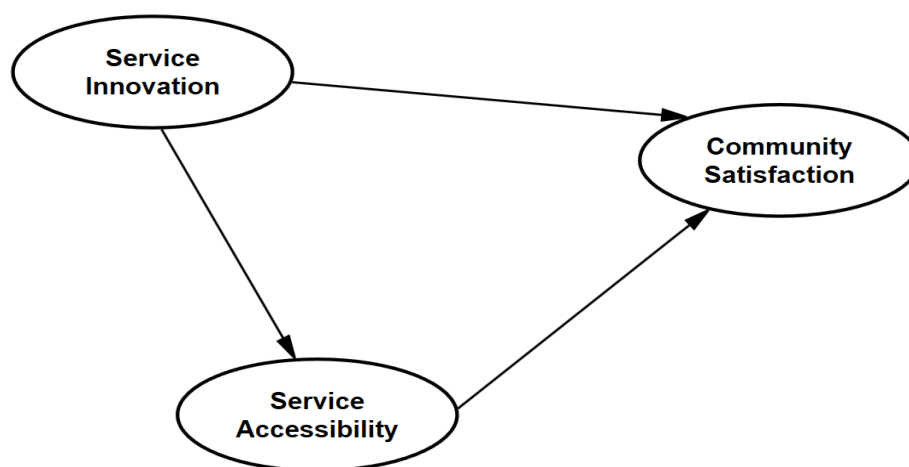


Figure 1. Conceptual Framework

2.8 Research Hypothesis

H₁: Service innovation has a positive and significant effect on service accessibility at the Population and Civil Registration Office of Medan City.

H₂: Service innovation has a positive and significant effect on public satisfaction at the Population and Civil Registration Office of Medan City.

H₃: Service accessibility has a positive and significant effect on public satisfaction at the Population and Civil Registration Office of Medan City.

H₄: Service innovation has a positive and significant effect on service accessibility through service accessibility at the Population and Civil Registration Office of Medan City.

Research Methodology

3.1 Type of Research

The type of research used by the researcher is quantitative research. According to Sugiyono (2022), quantitative research can be defined as a method based on positivist philosophy, used to study a specific population or sample, with sampling techniques generally conducted randomly, data collection using research instruments, and quantitative/statistical data analysis with the aim of testing predetermined hypotheses. This type of quantitative research was conducted to create a study aimed at adjusting a study and analyzing standard operating procedures, service innovations, and employee professionalism in relation to public satisfaction with service accessibility as an intervening variable at the Population and Civil Registration Office of Medan City.

3.2 Research Location and Time

The research location was the Population and Civil Registration Office of Medan City, located at Jalan Iskandar Muda No. 270, Medan Petisah, Medan City. The research was conducted over a period of 3 months, from July to October 2025.

3.3 Population and Sample

According to Sahir (2022), a population is the total number of individuals who have certain characteristics that are to be studied. The units in this population are called units of analysis, which can be individuals, institutions, or objects. The community that uses the services of the Medan City Population and Civil Registration Office is the subject of this study, but the exact population size is unknown, so this study will use appropriate sampling techniques to obtain a representative sample. According to Ahyar et al (2020), a sample is a part of the population selected for research, and the sample is taken to represent the entire population so that the sample findings can be used to make conclusions or generalizations about the population as a whole. The technique for determining the size or number of samples in this study uses the Cochran formula, resulting in a sample size of 96 respondents.

3.4 Research Data Sources

The data sources in this study are everything that the researcher refers to in order to obtain the information needed for the study. These data sources are individuals or specific customers who are the objects of the study. The data sources used in this study are primary data obtained from questionnaires filled out by customers.

Results

4.1 Outer Model Analysis

Outer Model Analysis using the PLS Algorithm produced the following results:

Validity Test

Table 1. Outer Loadings Values

	Community Satisfaction	Service Accessibility	Service Innovation
X2.1			0.875
X2.2			0.950
X2.3			0.888
X2.4			0.894
X2.5			0.766
Y.1	0.922		
Y.2	0.911		
Y.3	0.919		
Y.4	0.932		
Y.5	0.871		
Z.1		0.869	
Z.2		0.864	
Z.3		0.870	
Z.4		0.902	
Z.5		0.796	

Source: Smart PLS Output, 2025

Based on the values in Table 1 above, which show the results of outer model testing through loading factor/outer loadings values, all indicators in each variable have a loading value ≥ 0.70 . This indicates that each indicator is measured validly and strongly. Therefore, it can be concluded that all items in the questionnaire have met the validity criteria, as shown in the following figure.

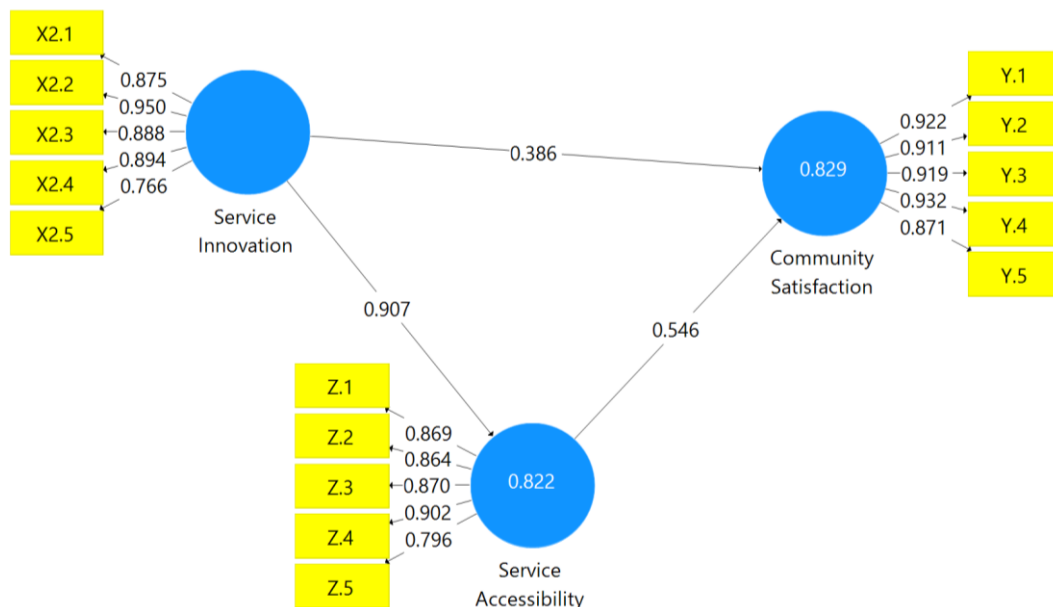


Figure 2. Outer Loading

Reliability Test

Table 2. Construct Reliability and Validity Test

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Community Satisfaction	0.949	0.949	0.961	0.830
Service Accessibility	0.912	0.918	0.935	0.741
Service Innovation	0.923	0.934	0.943	0.768

Source: Smart PLS Output, 2025

From Table 2 above, the reliability test results show that the Cronbach's Alpha and Composite Reliability values for all constructs are above 0.70. This indicates that all indicators have high internal consistency and are reliable in measuring their respective constructs. Thus, the research instrument is declared reliable and suitable for use in structural model testing.

Coefficient of Determination (R^2)

In assessing the model with PLS, we begin by looking at the R-squared for each dependent latent variable. The table below shows the R-squared estimation results using SmartPLS.

Table 3. R Square Results

	R Square	R Square Adjusted
Service Accessibility	0.822	0.821
Community Satisfaction	0.829	0.827

Source: Smart PLS, 2025

Table 3 shows the R-square values for both dependent variables. For the service accessibility variable, the R-square value is 0.822, meaning that the influence of service innovation is 82.2%, with the remainder attributable to other variables outside the model. For the community satisfaction variable, the R-square value is 0.829, meaning that service innovation and service accessibility have an influence of 82.9%, with the remainder attributable to other variables outside the model.

4.2 Structural Model Testing (Inner Model)

Hypothesis Testing

Direct Influence Between Variables

The direct effect between variables can be seen in the path coefficients. The data processing results show the direct effect values in the following table.

Table 4. Path Coefficients

	Original Sample	T Statistics	P Values	Conclusion
Service Innovation -> Service Accessibility	0.907	49.132	0.000	Accepted
Service Innovation -> Community Satisfaction	0.386	2.436	0.015	Accepted
Service Accessibility → Community Satisfaction	0.546	3.807	0.000	Accepted

Source: Smart PLS Output, 2025

The results in Table 4 show the following direct effect values:

1. Service innovation has a positive and significant effect on service accessibility with a t-statistic value of 6.960 above 1.96 and a significance of 0.000 below 0.05, meaning that service innovation has a real effect on service accessibility because the significance value is below 0.05. The results of this study are in line with previous studies, namely that service innovation has a positive and significant effect on service accessibility (Hakim & Eprilianto, 2024; Dharma et al, 2024).
2. Service innovation has a positive and significant effect on public satisfaction with a t-statistic value of 2.436 above 1.96 and a significance of 0.015 below 0.05, meaning that service innovation has a significant effect on public satisfaction because the significance value is below 0.05. The results of this study are in line with previous studies, namely that service innovation has a positive and significant effect on public satisfaction (Herlambang et al, 2022).
3. Service accessibility has a positive and significant effect on public satisfaction, with a t-statistic value of 3.807 below 1.96 and a significance of 0.000 above 0.05, meaning that service accessibility has a real effect on public satisfaction because the significance value is below 0.05. The results of this study are in line with previous studies, namely that service accessibility has a positive and significant effect on public satisfaction (Hamim et al, 2024; Siregar et al, 2021).

Indirect Effects Between Variables

The indirect effect between variables can be seen in the specific indirect effect value. The data analysis results show the indirect effect value in Table 5 below.

Table 5. Specific Indirect Effects

	Original Sample	T Statistics	P Values	Conclusion
Service Innovation -> Service Accessibility -> Community Satisfaction	0.495	3.864	0.000	Accepted

Source: Smart PLS, 2025

Table 5 shows the indirect effect between variables, namely service innovation has a positive and significant effect on public satisfaction through service accessibility with a t-statistic value of 1.965 above 1.96 and a significance of 0.048 below 0.05, meaning that service accessibility acts as a mediating variable between service innovation and public satisfaction.

Conclusion

1. Service innovation has a positive and significant effect on service accessibility at the Population and Civil Registration Office of Medan City.
2. Service innovation has a positive and significant effect on public satisfaction at the Population and Civil Registration Office of Medan City.
3. Service accessibility has a positive and significant effect on public satisfaction at the Population and Civil Registration Office of Medan City.
4. Service innovation has a positive and significant effect on service accessibility through service accessibility at the Population and Civil Registration Office of Medan City.

Recommendations

1. Public satisfaction with the lowest statement is "The services provided are tailored to my needs and characteristics as a user." Therefore, the recommendation for the Medan City Population and Civil Registration Office is to develop an integrated digital service called "Dukcapil Medan Smart Service," an application and web-based platform that allows the public to manage all population documents such as ID cards, family cards, birth certificates, and transfer letters online, quickly, transparently, and with real-time tracking of the process.
2. The lowest statement regarding service accessibility is: "Overall, I am satisfied with the quality and results of the services I received." Therefore, the recommendation for the Medan City Population and Civil Registration Office is to maintain and improve service quality through a continuous public satisfaction evaluation system. Even though the public is already satisfied, the Population and Civil Registration Office needs to maintain the consistency of service quality through periodic Public Satisfaction Surveys (SKM), both online and offline. The survey results are used to evaluate areas that can still be improved, such as service speed, staff friendliness, and ease of access to information. In this way, satisfaction is not only maintained but also continuously improved, in line with the vision of excellent public service oriented towards the needs of Medan residents.
3. The lowest-rated service innovation is: "The innovation implemented has a positive impact on improving the quality of life of the community." Therefore, the recommendation for the Medan City Population and Civil Registration Office is to strengthen community-based service innovation through the "Dukcapil Go to Community" program. The Population and Civil Registration Office can develop integrated mobile and digital services that directly reach communities in subdistricts, villages, schools, and densely populated areas. Innovations such as mobile service vehicles, the issuance of civil registration documents in public places (malls, markets, campuses, hospitals), and easily accessible online services will make it easier for the community to obtain documents without disrupting their daily activities. The impact is clear: faster service times, reduced transportation costs for the community, and more orderly civil registration administration.

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