



# The Influence of Service Standard Operating Procedures (SOP), Competence, Innovation on Public Satisfaction Through Service Quality as an Intervening Variable at the Balai Karantina Pertanian Kelas I Batam

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**Abstract:** This research aims to determine the effect of implementing Service Standard Operating Procedures (SOP), Competency and Innovation on Community Satisfaction through Service Quality as an Intervening Variable. The sample for this research was 105 service users of the Balai Karantina Pertanian Kelas I Batam. The technical analysis uses the path analysis method, namely specific direct effects and specific indirect effects. The results of the research show that Standard Operating Procedures for Services have a direct effect on service quality, competence does not have a direct effect on service quality, innovation has a direct effect on service quality, service quality has a direct effect on community satisfaction, Standard Operational Procedures of Service has a direct influence on community satisfaction, competence has no direct influence on community satisfaction, innovation has a direct influence on community satisfaction, standard operational procedures of service has no effect on public satisfaction through service quality, competence has no direct effect on public satisfaction through service quality, innovation has no direct effect on public satisfaction through service quality.

**Keywords:** Standard Operational Service Procedures, Competence, Innovation, Service Quality, Public Satisfaction

## 1. INTRODUCTION

Indonesia is a country rich in the diversity of natural biological resources. Various natural biological resources are spread throughout Indonesia, both on land and at sea, so it is often said that Indonesia is a country rich in the largest biodiversity after Brazil (highest diversity). Management of natural resources is carried out through the agricultural and fisheries system. Although Indonesia has undergone structural transformation, the agricultural and fisheries sector remains a strategic sector where during the economic crisis the agricultural and fisheries sector has resilience. The government continues to strive to improve the development of the agricultural and fisheries sector because in addition to increasing food security and sovereignty, it is also for the absorption of poor labor in rural areas, increasing industry and increasing foreign exchange.

The establishment of these standards is an essential part of carrying out preventive and curative actions to monitor the traffic of plant/animal/fish commodities, plant/animal/fish products, and food ingredients contaminated with plant/animal/fish pests (viruses, bacteria, fungi, parasites, and weeds) or residues (such as antibiotics, heavy metals, pesticides, and other chemicals) that can result in death or disruption to human health, animal health, and the sustainability of natural biological resources and the environment. Batam Class I Agricultural Quarantine Office is one of 52 Technical Implementation Units (UPT) of the Agricultural

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Quarantine Agency under the Ministry of Agriculture which was established based on the Regulation of the Minister of Agriculture of the Republic of Indonesia No. 22/Permentan/OT.140/4/2008 concerning the Organization and Work Procedures of the Agricultural Quarantine Technical Implementation Unit (UPT) dated April 3, 2008.

The main task and function of the Batam Class I Agricultural Quarantine Office is to prevent the entry and spread of quarantine animal pests and diseases and quarantine plant pests from abroad into the territory of the Unitary State of the Republic of Indonesia and prevent the exit of Quarantine Animal Pests and Diseases (HPHK) and Quarantine Plant Pests (OPTK) from the territory of the Unitary State of the Republic of Indonesia to abroad. Operational activities of quarantine measures include, among others, document inspection, field inspection, laboratory inspection, isolation, observation, detention, treatment, rejection, destruction and release. The operational implementation of agricultural quarantine measures in 2023 within the scope of the Batam Class I Agricultural Quarantine Center for animal and plant quarantine consists of export, import, domestic entry and domestic exit activities and all of them can be implemented quite well.

One indication of low public satisfaction with quarantine services according to what researchers found in the field is that service users feel they are unaware of changes to the Standard Operating Procedure (SOP) for Services due to the lack of public hearings/socialization. In the provision of public services, the service time indicator is a very important factor that must be known by the public so that they have clarity about how long the service process takes. Service time has been stated in the Service Level Agreement (SLA), which is a service level agreement or agreement regarding the services provided and received between the service provider and service user as stated in the contract document. Public service providers must be able to master the field of work they are responsible for, because it is related to providing information about regulations and policies related to procedures and requirements needed by the community, besides that, good attitudes and ways of communicating are important to show a satisfactory service image.

The indication of low public satisfaction through the competence of quarantine officers in the provision of public services is due to the lack of special officers who serve related to quarantine information services needed by the public so that they are still held by officers in the work area, this is because the number of quarantine officers in each work area is still very lacking while the tasks of inspection in the field of the entry/exit of MP HPHK or MP OPTK must also be completed immediately. Another condition due to the limited number of officers in the work area which can also have an impact on dissatisfaction with the community is when

the community wants to consult regarding the quarantine process/system while the officers in the work area are only non-government employees who do not have the capacity to provide information because the competent quarantine officers in this case are conducting inspections in the field.

Class I Batam Agricultural Quarantine Center has an innovation in web-based quarantine services in the form of Online Quarantine Inspection Application (PPK Online) with the aim that quarantine inspection applications can be carried out by the public using Android-based information technology devices so that they do not have to come to the office to fill out quarantine inspection application forms as before and quarantine service officers also do not need to manually input applicant data so that they can save time, especially for quarantine service users through airport entry gates. The presence of quarantine service innovation in the form of PPK Online is expected to provide convenience to the community of service users according to expectations so that they can save time amidst other busy activities because they do not need to come to the quarantine office to make an application, and in line with the government's goal of not bringing together service providers and service recipients again because the payment system for quarantine services in the form of state revenue has also been carried out with online transactions.

Based on the results of observations conducted by researchers regarding public dissatisfaction is due to the quality of service that is still not good where there are facilities and infrastructure that have not been met optimally such as the size of the service room in each work area is still very narrow so that it gives the impression of being uncomfortable for service users and in terms of public service standards it has not been met, as well as data processing devices that are still lacking and internet connections that still often experience disruptions. The Public Satisfaction Index (IKM) data can be used as assessment material and a description of the service elements that are being carried out, so that improvements can be made and will also be a driver and motivation for each service provider unit to improve the quality of its services in the future.

The decline in public satisfaction of quarantine service users at the Class I Batam Agricultural Quarantine Center from 2022 to 2023, the decline can be seen in the elements of procedure, service time, product specifications of service types and competency of implementers. The phenomenon of the decline in the value of the Public Satisfaction Index in several of these elements can be categorized as follows that the decline in the elements of procedure and service time is categorized as a decline in the Standard Operating Procedure element, the decline in the element of product specifications of service types is categorized as

a decline in the element of service quality, and the decline in the element of implementer competence is categorized as a decline in the element of quarantine officer competence.

The decline in these elements will cause a decline in the satisfaction felt by the public towards the performance of the implementation of quarantine services at the Class I Batam Agricultural Quarantine Center and it must be known what causes the decline in value. By knowing the causes of the decline in the level of public satisfaction with these elements, it is hoped that the Class I Batam Agricultural Quarantine Center can take action as an obligation to improve the performance of quarantine services so as to increase the satisfaction of the public using quarantine services. Based on the background described above, the author identifies the following problems:

- a. Socialization (public hearing) to the community using quarantine services is rarely carried out when there is a change in the Standard Operating Procedure (SOP) for Services, thus creating obstacles for quarantine service users when applying for quarantine certification.
- b. The competence of service officers in understanding the quarantine system is still different so that the information received by the community using quarantine services is not in accordance with existing procedures and regulations and causes confusion and dissatisfaction with the services of quarantine officers.
- c. Quarantine service innovation in the form of Online PPK has not fully run according to expectations because the community/users of quarantine services come from various groups with different backgrounds so that there are still people/users of quarantine services who do not understand the use of information technology.
- d. The quality of service is not yet optimal due to the facilities and infrastructure that are still limited where in some work areas the service room is still very narrow and does not meet service standards so that it has an impact on the lack of comfort for the community/users of services who need services, as well as data processing devices that are still limited and internet connections that also often experience disruptions make the service process slow.
- e. The satisfaction of the public using services is a measure of success in the provision of public services, however this has not been realized because the public is not yet satisfied with the services provided, as the results of the Public Satisfaction Index (IKM) survey showed a decline in several elements.

## **2. LITERATURE REVIEW**

### **Public Satisfaction (Y)**

Consumer satisfaction is a person's feeling of pleasure or disappointment that arises from comparing the performance of a product (or result) to their expectations (Kotler & Keller, 2019). Consumer satisfaction is a post-purchase evaluation, where the perception of the performance of the selected product/service alternative meets or exceeds expectations before purchase. If the perception of performance cannot meet expectations, then what happens is dissatisfaction (Tjiptono, 2019). Satisfaction is the level of a person's feelings after comparing the performance of a product or service and the perceived results with consumer expectations (Wijayanti, 2019). Public Satisfaction is the public response to the discrepancy between the level of expectations held and the actual performance felt after utilizing public services. The positive side of public expectations shows public trust and the perception of public organization performance is based on public knowledge, beliefs, and assessments of the public organization itself in real terms (Priansa, 2017). Public satisfaction is a person's feeling of pleasure or disappointment resulting from comparing the performance or results felt by a product or service with expectations (Atmaja, 2018). Public satisfaction is a response to the previously perceived performance of a public organization. The level of satisfaction is a function of the difference between perceived performance and expectation. The public can experience one of three general levels of satisfaction.

### **Service Quality (Z)**

Service Quality can be defined as focusing on meeting needs and requirements, as well as on timeliness to meet customer expectations (Arianto, 2018). The quality of public service is a dynamic condition that is related to goods or services, people, mechanisms and the environment where the desires of the community can be directly fulfilled and satisfied by the service provider (Sapruni & Akin, 2020). Quality is the completeness of the features of a product or service that has the ability to provide satisfaction for a need (Kotler & Keller, 2016). Service Quality is a central point for a company because it influences consumer satisfaction and consumer satisfaction will arise if the service quality provided is good. Quality is a dynamic statement related to products, services, people, processes, and environments that can meet or exceed expectations (Dam & Dam, 2021). Service quality is the benefit felt based on consumer evaluation of an interaction compared to previously expected benefits (Alshamsi et al., 2021; Demir *et al.*, 2021).

### **Standard Operational Service Procedures (X<sub>1</sub>)**

Standard Operating Procedure (SOP) is a guide used to ensure that an organization or company's operational activities run smoothly (Sailendra, 2015). Standard Operating Procedure (SOP) is a guideline for implementing office administration in order to improve services (Insani & Rismayanti, 2016). In a broad sense, SOP can be defined as "a document that describes operational activities that are carried out correctly, precisely and consistently, to produce products according to previously established standards. While in a narrow sense, SOP is part of a work system document that regulates in detail the operational activities of an organization so that they are carried out systematically (Fatimah, 2015). Employees are the main key in a company, be it a government or private institution engaged in services or products. And service is one of the supporting factors for success in carrying out tasks given by superiors to subordinates, to employees as they should be. Assignments, functions and authorities in an organization, be it a government or private institution, do not run by themselves, but are regulated by rules that have been determined by the government or company leaders based on mutual agreement, namely what is called administration in service, generally referred to as public service.

### **Competence (X<sub>2</sub>)**

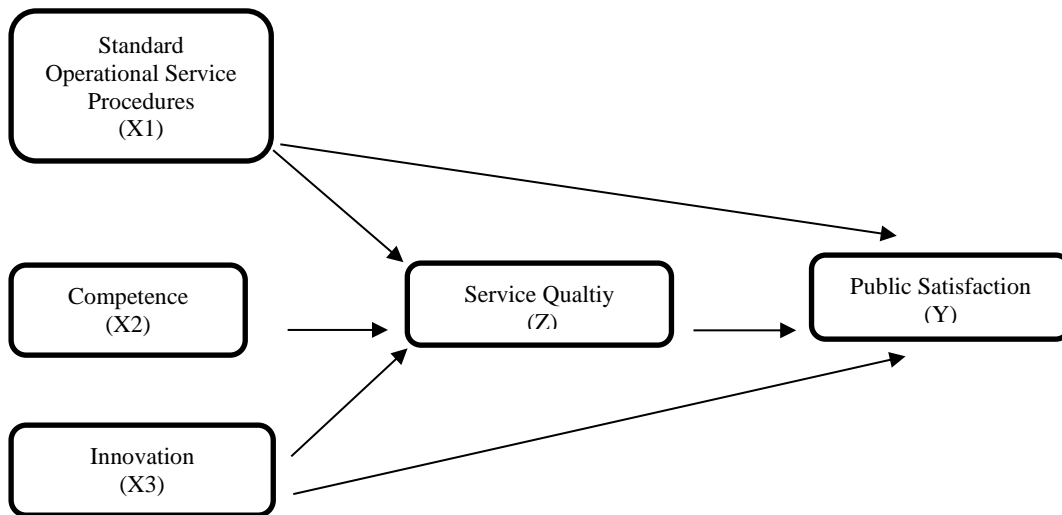
Competence is the ability to carry out or perform a job or task based on skills and knowledge and supported by the work attitude required by the job (Wibowo, 2016). Competence is an underlying characteristic of an individual that is related to the causal or cause-effect relationship of effective and/or superior performance in a job or situation (Kandula, 2016). Competencies are the underlying characteristics of a person that result in effective work and/or superior performance (Edison *et al.*, 2016). Competence is an individual's ability to carry out a job correctly and have advantages based on matters relating to knowledge, skills and attitude. Competency is a fundamental characteristic possessed by a person that directly influences, or can describe, excellent performance. In other words, competence is what outstanding performers do more often in more situations with better results, than what average performers (Rizal *et al.*, 2015).

### **Innovation (X<sub>3</sub>)**

Innovation is an idea, item, event or method that is felt or observed as something new for a person or group of people, whether in the form of a discovery or invention (Kristiawan *et al.*, 2018). Innovation as something new, namely by introducing and carrying out new practices

or processes (goods or services) or it could also be by adopting new patterns originating from other organizations. According to the Regulation of the Minister of PANRB No. 30/2014, public service innovations that emerge in the service sector can be in the form of original creative ideas, modified ideas, and/or adaptations that are beneficial to service providers and recipients. Public service innovation itself does not require the creation of something new, but can also take a contextual approach in the sense that innovation is not limited to the emergence of innovative ideas and practices, but can be a form of innovation that arises from the development or improvement of the quality of previously existing innovations. Innovation is a representation of the unsustainability of past conditions (Osborn & Brown, 2017).

**Conceptual framework**



*Source: Researcher (2024)*

**Figure 1.** Conceptual Framework

**3. RESEARCH METHOD**

**Type of research**

This type of research is quantitative research with a survey research method. Research conducted to collect information is done by compiling a list of questions asked to respondents. In survey research, it is used to examine the symptoms of a group or individual behavior. Data mining can be done through questionnaires and interviews. This research attempts to test the hypothesis used where this research will take samples from a population and use a questionnaire as the main data collector.

## Data source

This research uses primary and secondary data sources, as follows:

- a. According to Sugiyono, (2017), primary data is data that directly provides data to data collectors. Primary data sources are obtained through an interview activity with the research subject and by observation or observation in the field. The primary data used by the authors in the study was a questionnaire.
- b. According to Sugiyono, (2017), secondary data is a data source that does not directly provide data to data collectors, for example through other people or through documents. Secondary data sources are complementary data sources that function to complement the data needed by primary data. Secondary data referred to in this study is a source of research data obtained through intermediary media or indirectly published or unpublished in general.

## Population and Sample

The population used in this study were service users at the Batam Class I Agricultural Quarantine Office with a total of 105 people. Service Users is a term for individuals or business entities that require quarantine services. The sampling technique in this study uses sampling with a census/total sampling technique. Census, namely "a sampling technique where all members of the population are used as samples". Therefore, the sample taken in this study is a saturated sample or all members of the population as many as 105 quarantine service users.

## 4. RESULTS AND DISCUSSION

### Loading Factor

**Table 1.** Loading Factor

	<b>SOP (X1)</b>	<b>Competence</b>	<b>Inovastion (X3)</b>	<b>Service Quality (Z)</b>	<b>Public Satisfaction</b>
SOP1	0.883				
SOP2	0.898				
SOP3	0.916				
SOP4	0.887				
SOP5	0.919				
SOP6	0.904				
SOP7	0.894				
SOP8	0.849				
SOP9	0.884				
SOP10	0.910				
SOP11	0.923				
SOP12	0.909				



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SOP13	0.923				
SOP14	0.927				
SOP15	0.910				
SOP16	0.935				
SOP17	0.916				
SOP18	0.887				
SOP19	0.894				
SOP20	0.914				
SOP21	0.849				
SOP22	0.891				
SOP23	0.916				
SOP24	0.917				
KOM1		0.902			
KOM2		0.892			
KOM3		0.906			
KOM4		0.912			
KOM5		0.934			
KOM6		0.901			
KOM7		0.932			
KOM8		0.906			
KOM9		0.928			
KOM1		0.925			
KOM1		0.930			
KOM1		0.902			
KOM1		0.960			
KOM1		0.944			
KOM1		0.947			
INO1			0.884		
INO2			0.937		
INO3			0.909		
INO4			0.923		
INO5			0.913		
INO6			0.899		
INO7			0.928		
INO8			0.931		
INO9			0.900		
INO10			0.919		
INO11			0.902		
INO12			0.930		
INO13			0.923		
INO14			0.939		
INO15			0.900		
KUP1				0.882	
KUP2				0.891	
KUP3				0.927	
KUP4				0.945	
KUP5				0.878	
KUP6				0.911	
KUP7				0.914	

KUP8				0.934	
KUP9				0.918	
KUP10				0.928	
KUP11				0.945	
KUP12				0.885	
KUP13				0.874	
KUP14				0.926	
KUP15				0.948	
KEM1					0.936
KEM2					0.945
KEM3					0.933
KEM4					0.925
KEM5					0.865
KEM6					0.913
KEM7					0.915
KEM8					0.948
KEM9					0.921
KEM1					0.927
KEM1					0.941
KEM1					0.921
KEM1					0.904
KEM1					0.907
KEM1					0.918

Source: Processed by researchers (2024)

It is known that all items are worth above 0.7. This is if the outer loading value is more than 0.7, then it meets the convergent validity criteria..

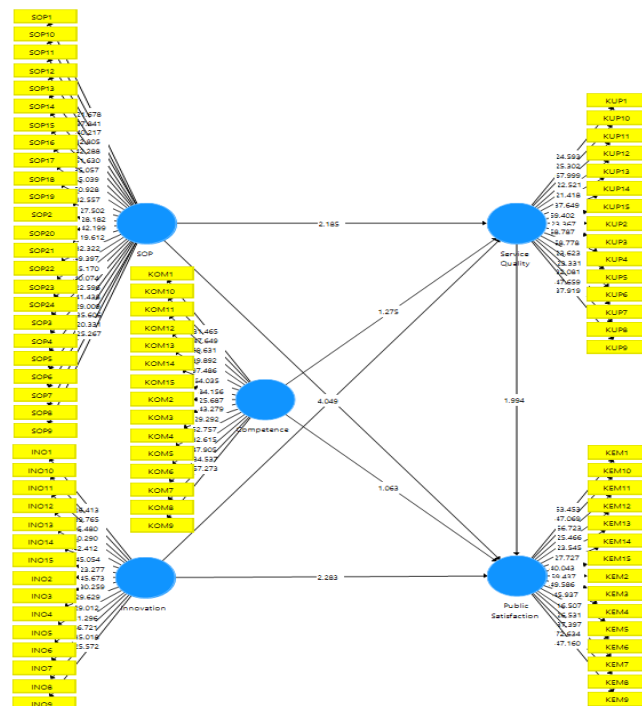


Figure 2. Outer Model Test Results

**Construct Reliability and Validity**

**Table 2.** Construct Reliability and Validity

	<b>Cronbach's Alpha</b>	<b>Rho_A</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
Standard Operating Procedure (X1)	0.990	0.990	0.991	0.814
Competence (X2)	0.987	0.987	0.988	0.849
Innovation (X3)	0.986	0.987	0.987	0.839
Service Quality (Z)	0.986	0.987	0.987	0.835
Public Satisfaction (Y)	0.987	0.987	0.988	0.849

*Source: Processed by researchers (2024)*

Cronbach's Alpha value of the Standard Operating Procedure (SOP) Service variable (X1) is 0.990, composite reliability is 0.991, Competence variable (X2) is 0.987, composite reliability is 0.988, Innovation variable (X3) is 0.986, composite reliability is 0.987, service quality variable (Z) is 0.986, composite reliability is 0.987, and public satisfaction variable (Y) is 0.987, composite reliability is 0.988, all variables have values above 0.7. The Average Variance Extracted (AVE) value of the Standard Operating Procedure (SOP) Service variable (X1) is 0.814, the Competence variable (X2) is 0.849, the Innovation variable (X3) is 0.839, the service quality variable (Z) is 0.835, and the public satisfaction variable (Y) is 0.849, all variables have a value of more than 0.5. So it can be concluded that the variables tested are valid and reliable, so that structural model testing can be carried out.

**Structural Model Evaluation (Inner Model)**

**Tabel 3.** R-Square

	<b>R Square</b>	<b>Adjusted R Square</b>
Service Quality	0.837	0.832
Public Satisfaction	0.935	0.933

*Source: Processed by researchers (2024)*

It is known that the R Square value of Service Quality (Z) is 0.837, which means that the Service Quality variable (Z) is 83.7% influenced by the Service Standard Operating Procedure (SOP) variable (X1), the competency variable (X2) and the innovation variable (X3), while 16.3% is influenced by other factors outside the variables studied. The R Square value of the Community Satisfaction Variable (Y) is 0.935, meaning that the Community Satisfaction variable (Y) is 93.5% influenced by the Service Standard Operating Procedure

(SOP) variable (X1), the competency variable (X2) and the innovation variable (X3), while 6.5% is influenced by other factors outside the variables studied. The R Square value of Service Quality (Z) is 0.837, greater than 0.67, indicating that the model is good. While the R Square value of Community Satisfaction (Y) is 0.935, greater than 0.67, indicating that the model is good.

### Direct Effect Test

**Table 4.** Path Coefficients

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
X1 -> Z	0.294	0.288	0.143	2.060	<b>0.040</b>
X2 -> Z	0.223	0.248	0.182	1.225	<b>0.221</b>
X3 -> Z	0.436	0.418	0.110	3.959	<b>0.000</b>
Z -> Y	0.328	0.365	0.153	2.141	<b>0.033</b>
X1 -> Y	0.290	0.271	0.082	3.553	<b>0.000</b>
X2 -> Y	0.133	0.123	0.132	1.008	<b>0.314</b>
X3 -> Y	0.262	0.253	0.107	2.442	<b>0.015</b>

*Source: Processed by researchers (2024)*

Based on the table above, it is known that:

- a. That the original sample value of the influence of the Standard Operating Procedure (SOP) Service variable (X1) on the Service Quality variable (Z) is positive, namely 0.294. The original sample value of the influence of the Competence variable (X2) on the Service Quality variable (Z) is positive, namely 0.223. The original sample value of the influence of the Innovation variable (X3) on the Service Quality variable (Z) is positive, namely 0.436. The original sample value of the influence of the Service Quality variable (Z) on the Community Satisfaction variable (Y) is positive, namely 0.328. It is known that the original sample value of Motivation is 0.437, therefore Motivation has a positive effect on Job Satisfaction and the t-statistic value is 5.551 and the p-value is 0.000. Because the t-statistic value < 1.96 (t table significant 5%), and p-value > 0.05. So it can be concluded that Motivation has a positive and significant effect on Job Satisfaction of Civil Servants of the Bintan Regency Regional Secretariat.
- b. The original sample value of the influence of the Standard Operating Procedure (SOP) Service variable (X1) on the Public Satisfaction variable (Y) is positive, namely 0.290.

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The original sample value of the influence of the Competence variable (X2) on the Public Satisfaction variable (Y) is positive, namely 0.133. The original sample value of the influence of the Innovation variable (X3) on the Public Satisfaction variable (Y) is positive, namely 0.262.

**Indirect Effect Test**

**Table 5.** Indirect Effect Test

	<b>Original Sample (O)</b>	<b>Sample Mean (M)</b>	<b>Standard Deviation (STDEV)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
X1 -> Z -> Y	0.097	0.105	0.071	1.359	<b>0.175</b>
X2 -> Z-> Y	0.073	0.094	0.084	0.873	<b>0.383</b>
X3 -> Z -> Y	0.143	0.151	0.072	1.976	<b>0.049</b>

*Source: Processed by researchers (2024)*

Based on the table above, it is known that:

Based on the table above, it is known that all original sample values are positive. The original sample value of the influence of the Standard Operating Procedure (SOP) Service variable (X1) on the Public Satisfaction variable (Y) through the Service Quality variable (Z) is positive, namely 0.097. The original sample value of the influence of the Competence variable (X2) on the Public Satisfaction variable (Y) through the Service Quality variable (Z) is positive, namely 0.073. The original sample value of the influence of the Innovation variable (X3) on the Public Satisfaction variable (Y) through the Service Quality variable (Z) is positive, namely 0.143

**5. CONCLUSIONS AND SUGGESTIONS**

**Conclusion**

Based on the results of the research and discussion, the following conclusions can be drawn:

- a. Standard Operating Procedure (SOP) of Service has a significant direct effect on service quality.
- b. Competence has an insignificant direct effect on service quality.
- c. Innovation has a significant direct effect on service quality.
- d. Service Quality has a significant direct effect on public satisfaction.
- e. Standard Operating Procedure (SOP) of Service has a significant direct effect on public satisfaction.

- f. Competence has a significant direct effect on public satisfaction.
- g. Innovation has a significant direct effect on public satisfaction.
- h. Standard Operating Procedure (SOP) of Service has an insignificant indirect effect on Public Satisfaction through Service Quality at the Batam Class I Agricultural Quarantine Office
- i. Competence has an insignificant indirect effect on Public Satisfaction through Service Quality at the Batam Class I Agricultural Quarantine Office.
- j. Innovation has a significant indirect effect on Public Satisfaction through Service Quality at the Batam Class I Agricultural Quarantine Office

### **Suggestion**

Based on the conclusions obtained from the above research, the following suggestions are made:

- a. Batam Class I Agricultural Quarantine Center continues to make continuous efforts to develop, update, and refine SOPs to remain relevant to community needs and technological developments, implement SOP socialization to all staff and service users when SOPs change to ensure consistent understanding and implementation, and conduct periodic evaluations of the effectiveness of SOPs in improving service quality.
- b. Continue to develop employee competencies but must be integrated with improvements to the system and work environment to achieve optimal service quality improvements.
- c. Continue to improve digital service performance by updating PPK Online innovations to be better and more user-friendly for service providers and service recipients and supporting paperless services, and conduct periodic evaluations of the effectiveness of the innovations implemented, to ensure that these innovations truly contribute to improving service quality
- d. To maintain and improve the quality of service at the Batam Class I Agricultural Quarantine Center so that it always fulfills or maintains supporting service facilities and infrastructure, in addition aspects related to speed, friendliness, accuracy, and ease of procedures are also things that need to be considered continuously.
- e. In order to continuously improve the satisfaction of the public using the services, it is expected that the leadership can continuously evaluate and take corrective actions based on the results of the public satisfaction assessment and provide services that focus on fulfilling the expectations of quarantine service users to increase public trust in the service performance of the Batam Class I Agricultural Quarantine Center.

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