

# Service Improvement Strategy of National Veterinary Public Health Laboratory, Ministry of Agriculture Indonesia Towards A Clean and Serving Bureaucracy Area

Anik Winanningrum<sup>1,2\*</sup>, Anna Fariyanti<sup>3</sup>, Nahrowi<sup>4</sup>

<sup>1</sup> Graduate School Students, Regional Development Management Study Program, Faculty of Economics and Management IPB University, Bogor, Indonesia

<sup>2</sup> Head of Administration at National Veterinary Public Health Laboratory, Ministry of Agriculture, Bogor, Indonesia

<sup>3</sup> Lecturer in The Department of Agribusiness, Faculty of Economics and Management IPB University, Bogor, Indonesia

<sup>4</sup> Lecturer in The Department of Nutrition and Feed Technology, Faculty of Animal Science, IPB University, Bogor, Indonesia

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Corresponding Author:

Anik Winanningrum

[winaanik21@gmail.com](mailto:winaanik21@gmail.com)

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**Abstract:** The contamination of animal-based foods poses risks to consumer health and economic stability, including trade losses and reduced consumer confidence. As the national reference laboratory under the Ministry of Agriculture, Indonesia, the Quality Testing and Certification Agency for Animal Products (BPMSPH) ensures product quality and certification. However, increasing sample volume and limited resources create service challenges, requiring urgent improvements to meet clean and responsive public service standards. This study aims to develop strategies for enhancing BPMSPH services toward Clean and Serving Bureaucracy Area (WBBM) standards. A mixed-method approach was used, combining primary data from interviews and questionnaires with secondary data from relevant agencies. SERVQUAL and AHP analyses identified service gaps and prioritized improvements. Findings show that BPMSPH services do not fully meet customer expectations, with key gaps in digital service accessibility, officer problem-solving capabilities, and customer assistance availability. AHP analysis prioritizes assurance and responsiveness, emphasizing the need for enhancing officer competency and developing digital services. The implementation of these strategies is expected to enhance BPMSPH's service efficiency, increase customer satisfaction, and support the achievement of WBBM certification. By strengthening service assurance and responsiveness, BPMSPH can provide more professional, effective, and accessible public services, aligning with stakeholder expectations and regulatory standards.

**Keywords:** AHP; BPMSPH; Food safety; Public service; SERVQUAL

## Introduction

Safety incidents, such as contamination of bacteria, viruses, parasites, and chemical or physical contamination, can occur at various stages of the value chain, from production to consumption (Lebelo et al., 2021). Food contamination is not only a risk to consumer health but also has far-reaching economic implications, including losses in broad international trade and a decline in consumer confidence (Rahayu et al., 2020; Lebelo et al., 2021; Rahayu et al., 2016). BPMSPH is a

national reference laboratory in the field of Veterinary Public Health under the Directorate General of Livestock and Animal Health (DITJENPKH, 2023), Ministry of Agriculture, which plays a role in the implementation of inspection, testing, and certification of animal products that will be circulated on the market. Supervision carried out by BPMSPH to ensure that animal products that will be circulated on the market have met hygienic and sanitary requirements along the production chain (Tasyah et al., 2021).

Throughout 2020 - 2022, BPMSPH's performance achievements in product testing mechanisms have

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increased to exceed the set targets (BPMSPH, 2023). In 2020, the realization of testing exceeded the target with a significant percentage increase of 154.61%. Meanwhile, in 2021, it showed an even more substantial increase in performance, with the realization of testing increasing by 226.45% from the lower target. Although in 2022, there was an increase in the target, the realization of testing remained positive, with a percentage increase of 113.95% against the target. However, the increase in production volume and product diversity, as well as limited resources, are factors that can affect the quality of services provided by BPMSPH, so based on the evaluation conducted by the Ministry of State Apparatus Empowerment and Bureaucratic Reform in the last five years, BPMSPH has not succeeded in achieving the minimum standard of Clean Bureaucratic Areas Serving by the Regulation of the Ministry of State Apparatus Empowerment and Bureaucratic Reform No. 90 In 2021.

In 2020, the Public Service Index (IPP) value only reached 3.45 and did not meet the minimum limit of the survey. This condition continues until 2023, BPMSPH has not achieved the WBBM predicate. Based on these conditions, this research is essential to conduct. This study aims to identify obstacles to BPMSPH services in meeting stakeholder expectations, analyze strategic factors that affect the quality of BPMSPH services, and formulate service improvement strategies to achieve WBBM standards.

Method

To develop a service strategy at BPMSPH, this study integrates two analysis methodologies, SERVQUAL Analysis and Analytic Hierarchy Process (AHP). The combined approach of these two analysis methodologies is carried out to produce a deep and thorough understanding of the current conditions of animal product testing and certification services at BPMSPH and formulate a service improvement strategy that can be implemented. To ensure the analysis's validity, reliability, and depth, the researcher selected expert resource persons using the purposive sampling technique based on their expertise and experience relevant to the BPMSPH service field (Mahmudi, 2021). The questionnaire is designed to blunt information related to obstacles in BPMSPH services to meet stakeholder expectations. Structured interviews aim to obtain factual data and understand the perceptions, subjective experiences, and expectations of users, which can reveal gaps and service quality. Furthermore, in order to formulate a service improvement strategy, the researcher determines the weight of the criteria by involving expert resource persons through purposive sampling. The first stage of

this research is to identify obstacles in services at BPMSPH to meet stakeholder expectations. At this stage, the researcher uses the SERVQUAL analysis method to see the gap between the expectations and perceptions of service users towards the services provided. Then, the next stage is to determine the priority of improving service quality using the Analytical Hierarchy Process (AHP) analysis and provide recommendations for improving service improvement (Atanasova-Pachemska et al., 2014).

The data sources used include primary and secondary data. Primary data was obtained through interviews with management, namely the head of the center, the heads of the work team, laboratory coordinators, and service users. In contrast, the secondary data came from BPMSPH reports and publications relevant to the animal product sector. Data was collected through Focus Group Discussion (FGD), structured interviews, questionnaire distribution, and literature review. The purposive sampling method determined 50 resource persons from various related sectors.

Identification of Obstacles in Services at BPMSPH to Meet Stakeholder Expectations

This study adopts the SERVQUAL model as a widely recognized framework for measuring service quality in BPMSPH, specifically to identify the gap between customer expectations and their perception of the services provided. The survey was designed according to the SERVQUAL dimension to measure each aspect of the service using a Likert scale (Awaludin et al., 2023). The results of the analysis will provide important insights into the aspects of the service that meet, exceed, or do not meet customer expectations. Improvement strategies can be formulated to address specific weaknesses, leverage strengths, and improve overall service quality. The SERVQUAL model focuses on 5 (five) main dimensions that determine service quality (Babakus & Boller, 1992), namely tangible, reliability, responsiveness, assurance, and empathy. The SERVQUAL matrix uses a rating scale to measure customer expectations and perceptions of service quality. The score scale ranges from 1 to 5.

Table 1. SERVQUAL Matrix

Dimension	Average Score		Gap	Description
	Percep-tion (X)	Expecta-tion (Y)		
Tangible	-	-	-	-
Reliability	-	-	-	-
Responsiveness	-	-	-	-
Assurance	-	-	-	-
Empathy	-	-	-	-

### *Formulating Service Improvement Strategy at BPMSPH Towards a Clean and Serving Bureaucratic Area*

The Analytical Hierarchical Process (AHP) weighting method used in this study aims to assess the level of importance of the service quality variables provided by BPMSPH to service users. The AHP weighting process is carried out after obtaining the value weights of each SERVQUAL dimension, which is given based on the paired comparison matrix system.. Each criterion of the service quality dimension has a different level of importance in influencing the perception or assessment of service users towards the services received, so the weight given is also different. This weighting is carried out by making a paired comparison of the five dimensions of SERVQUAL, namely Physical Evidence (Tangibles), Reliability (Reliability), Responsiveness (Responsiveness), Assurance (Assurance), and Empathy (Empathy). Through the analysis of the paired comparison matrix, the relative weight of each SERVQUAL dimension will be obtained to measure how much influence each SERVQUAL dimension has on the overall assessment of BPMSPH service quality.

**Table 3.** Paired Comparison Matrix

Criteria	Tangi- bles	Reliabi- lity	Responsi- veness	Assu- rance	Empa- thy
Tangibles	-	-	-	-	-
Reliability	-	-	-	-	-
Responsive ness	-	-	-	-	-
Assurance	-	-	-	-	-
Empathy	-	-	-	-	-

## Results and Discussion

### *Validity Test*

#### *Obstacles in Services at National Veterinary Public Health Laboratory to Meet Stakeholder Expectations*

One of the obstacles in service is that the quality of service is not in accordance with customer expectations. Good service quality can improve customer satisfaction, loyalty, and retention. Seeing the gap in service quality expectations is important because it can help BPMSPH identify and correct deficiencies in its services. To identify service gaps in BPMSPH using the ServQual Analysis approach. Which is a tool to measure service quality by comparing the gap between customer perception and expectations on five dimensions of service quality: Tangibles (physical evidence), Reliability (reliability), Responsiveness (responsiveness), Assurance (assurance), and Empathy (empathy). Gap value refers to the difference between the perceived value and the expected value seen from the customer's perspective. In other words, this gap

describes the difference between the quality of service perceived by customers and the service they expect. Through gap value analysis, the steps needed to reduce the gap or achieve the desired future service performance can be identified.

Based on the results of the SERVQUAL Analysis presented in Table 4, several service dimensions have negative gap values, which means that there is still a discrepancy between customer perception and their expectations. In the Physical Evidence dimension (Tangibles), aspects that need to be improved include the appearance of employees who must be more professional, the comfort of the service area with good lighting, and the use of digital platforms that are more accessible for interaction with customers. In the Reliability dimension, the main challenge is ensuring that services are delivered on time as promised and improving officers to provide practical solutions to customer problems. In the Responsiveness dimension, the most significant issue is the lack of proactivity of officers in providing service information and limited access to service assistance for customers. The Assurance dimension also shows shortcomings regarding officer knowledge, service time guarantees, and how officers serve customers who have not fully cultivated trust. Meanwhile, in the Empathy dimension, there are problems in understanding the specific needs of customers and the lack of optimal digital service information in making it easier to access information for customers.

By looking at various aspects that still need to be improved, the main priority in improving BPMSPH services is to enhance the competence of service officers and digitize services. This increase in competence includes technical aspects such as knowledge and understanding of services, and officers serve customers to be more professional and responsive. In line with the opinion of Restiani Widjaja & Wildan (2023), service quality is the main factor that determines the success of an organization, where good service must be adjusted to customer expectations. Service quality measures the extent to which a business or organization can meet customer requests in an expected or desired way based on customer needs (Ramli 2020). Therefore, training and capacity building of service officers is a strategic step in ensuring better service standards at BPMSPH.

In addition, service digitization is also a key element in overcoming several identified obstacles. Better use of digital platforms, such as online registration systems, mobile applications, and digital-based information services, can provide easier and faster access for customers. Thus, this increase will reduce the service gap and increase the effectiveness and efficiency of BPMSPH in delivering services to stakeholders. Research by Mirza *et al.* (2023) emphasizes that

information technology plays a vital role in bureaucratic reform; the development of suitable information technology applications can make the government's business processes faster so that the output produced is more increased or more productive. Interaction with the community that is carried out electronically can speed up and simplify the public service process.

Increasing officer competence and optimizing information technology is expected to improve the quality of BPMSPH services to meet customer expectations and strengthen efforts to develop the Integrity Zone towards a Clean and Serving

Bureaucratic Area (WBBM). In Fathurohman's (2023) research, using the same analysis method, after calculating the SERVQUAL score, it was concluded that there are three items of the best service quality that have been implemented and need to be maintained by the PJK3 Jakarta testing service, including the guarantee of the confidentiality of the test result data, the completeness of the use of Personal Protective Equipment (PPE) for the officers who carry out the test, the politeness and friendliness of personnel in carrying out the service and there are six things that It needs to be considered to prioritize improvements.

**Table 4.** SERVQUAL Analysis Results with Negative Values on Each Service Dimension

Dimension	Var.	Criteria	Gap
Tangibles	X1.3	The appearance of the employees gives a professional impression	-0.09
	X1.4	The service area is comfortable, has a good lighting area with a pleasant atmosphere for service users	-0.09
	X1.5	Using a digital platform to interact with customers (website, mobile application, registration system, and reporting of test results) that is easily accessible	-0.21
Reability	X2.2	Services provided in accordance with the promised time	-0.05
	X2.5	Service Officers are able to provide effective solutions to problems faced by service users	-0.09
Responsiveness	X3.4	Service Officers are proactive in providing information about the service process	-0.91
	X3.6	There is service assistance that is easily accessible if service users have questions or problems	-0.12
Assurance	X4.1	The service staff has sufficient knowledge to answer questions from service users	-0.16
	X4.4	Provides a guarantee of time for services provided	-0.07
	X4.6	The way service personnel serve customers can create customer trust	-0.12
Emphaty	X5.1	Service Officers show an understanding of the specific needs of service users	-0.09
	X5.4	Digital service information makes it easier for service users to get information easily and quickly	-0.14

*Service Improvement Strategy at BPMSPH as The National Veterinary Public Health Laboratory Towards a Clean and Serving Bureaucratic Area*

To reduce customer dissatisfaction with services at BPMSPH that are not in accordance with expectations, it is necessary to make improvements by focusing on the dimensions that need to be improved. One way to do this is to use the AHP weighting method, which helps determine the level of importance of each dimension of service quality. The AHP method begins by determining the weights of each SERVQUAL dimension, which includes five main dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. The weighting process is carried out using a paired comparison matrix system, where each criterion is assessed based on its level of importance. Each dimension has a different weight according to its effect on customer satisfaction. Thus, this weighting is expected to provide clear guidance for BPMSPH in identifying areas that need to be improved to improve service quality and meet customer expectations, as well

as ensure more optimal services in accordance with the desired standards.

**Table 5.** AHP Analysis Results

Criteria	Presentase	Rank
Tangibles	11.71	4
Reliability	24.40	3
Responsiveness	24.81	2
Assurance	29.05	1
Empathy	10.03	5

The results of the AHP analysis are presented in Table 5. Based on the results of the AHP analysis, the main priority for service improvement is in the Assurance dimension with the highest weight, followed by Responsiveness, then Reliability, Tangibles, and finally, Empathy. In the Assurance dimension, the most crucial aspect that needs to be improved is ensuring that service officers have sufficient knowledge to answer service user questions and provide services in a way that can foster customer trust. Meanwhile, in the Responsiveness dimension, there needs to be an



improvement in providing easily accessible service assistance for service users who have questions or face problems.

According to Puspitawaty (2020), two central elements form quality services, namely human or personal quality and technical skills. Human quality includes how officers provide services through attitudes, behaviors, and verbal skills in interacting with customers. Meanwhile, technical skills include mastery of work procedures and systems in providing optimal services. In line with this, the research of Rizqi et al. (2024) emphasizes that increasing team member's competence directly impacts improving service quality. This competency includes skills, knowledge, and abilities in managing customer data and providing effective services. Employees who have high competence will be able to offer better, professional, and targeted service.

Employees with adequate competence also contribute to the efficiency and effectiveness of services and increase service efficiency and effectiveness customer trust and satisfaction in BPMSPH. Therefore, improving the competence of employees, especially service officers, needs to be a top priority in optimizing BPMSPH services. In line with Mahmudi (2021), through the integration method of SERVQUAL and AHP analysis, the results of the study also show that the highest and most urgent service quality to be improved is reliable employees in handling customer service problems, improving product information to customers, and improving facilities and infrastructure at the Rembang Regency Dekranasda. Both human resources and information technology development are strategic in influencing service quality.

BPMSPH requires careful planning to optimize animal product safety and quality testing services. The structured program, based on the results of the analysis, aims to improve the competence of human resources and information technology that can provide easy access to service users by taking advantage of the regulatory opportunities and the national market. The planning consists of activity program with the specific goal of ensuring the effectiveness of the program can significantly increase the value of the Public Service Satisfaction Index at BPMSPH so that it is able to boost the value of Integrity Zone Development towards a Clean and Serving Bureaucratic Area.

## Conclusion

BPMSPH still faces obstacles in its services, primarily related to service digitization, the effectiveness of solutions for customers, accessibility of assistance, and the competence of service personnel. Although BPMSPH has more strengths than weaknesses

and can take advantage of external opportunities, it needs to prioritize improvements in assurance and responsiveness. Improving the competence of officers and ease of access to services is the primary strategy to improve service quality to meet stakeholder expectations and achieve the standards of Clean and Serving Bureaucratic Areas (WBBM).

BPMSPH conducts a program to Improve Human Resources Competence and Information Technology Development in Services at BPMSPH, which is expected to increase the value of the Public Service Satisfaction Index so that it can boost the value of the Integrity Zone Development towards WBBM and carry out information technology improvement programs, not only in the form of new applications but can develop existing digital applications through evaluation, identification of needs and improvement of the platform to meet the needs of the ease of access for service users.

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Conceptualization and methodology: A.W.; validation: A.F and N.R; formal analysis: A.W.; data curation: M.S and A.H; preparation of initial draft: A.W.; writing review and editing: A.W., A.F and N.R.

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In writing this article, the authors do not have any conflict of interest.

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