



(RESEARCH ARTICLE)



Customer satisfaction strategy design for mandatory SNI product certification services at the product certification body (LSPro) of Balai Sertifikasi using the SERVQUAL Method and SWOT Analysis

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Abstract

The mandatory implementation of the Indonesian National Standard (SNI), regulated by existing regulations in Indonesia, applies to both domestic and imported products, requiring compliance from businesses with the SNI and possessing the SNI Product Usage Certificate (SPPT SNI) issued by the Product Certification Body (LSPro). One of the LSPros in Indonesia is the LSPro Balai Sertifikasi, which provides mandatory SNI product certification services. The SERVQUAL questionnaire helps identify service deficiencies and strengths and measures their significance, while SWOT analysis highlights weaknesses, strengths, opportunities, and threats. SERVQUAL results indicate that service quality below customer expectations can lead to dissatisfaction. From the SWOT matrix, the most relevant implementation strategies are identified. The QSPM matrix is used to strengthen SWOT findings and identify the most suitable strategies, with results indicating priority on strategies WO-1, WT-1, and ST-2 to enhance customer satisfaction with mandatory SNI product certification services at the LSPro Balai Sertifikasi.

Keywords: Indonesian National Standard (SNI); Strategy; Customer Satisfaction; Product Certification Body (LSPro); SERVQUAL; SWOT Analysis; QSPM Matrix

1. Introduction

The Indonesian government has implemented laws and regulations to ensure the quality and competitiveness of domestic industries. The Law of the Republic of Indonesia Number 20 of 2014 emphasizes the importance of standardization and conformity assessment in improving quality, efficiency, and trade facilitation [1]. Conformity assessment involves evaluating goods, services, systems, processes, or personnel against reference requirements. This process is carried out by Conformity Assessment Bodies (LPK) such as Certification Bodies, Testing Laboratories, and Inspection Bodies.

According to the Regulation of the Minister of Industry of the Republic of Indonesia Number 86/M-IND/PER/9/2009 concerning Indonesian National Standards in the Industrial Sector, in order to achieve healthy business competition, consumer protection, and enhance the quality and competitiveness of domestic industries, it is necessary to implement Indonesian National Standards (SNI), enforce mandatory SNI, and designate Conformity Assessment Bodies by the relevant technical ministry [2]. The mandatory enforcement of SNI applies equally to domestically produced or imported goods and/or services traded within the territory of Indonesia. Producers manufacturing goods and/or services for which SNI is mandatory must comply with the provisions and implement SNI in their products and possess the SNI Usage Product Certificate (SPPT SNI) issued by a Product Certification Body appointed by the relevant technical ministry for conducting conformity assessment activities, namely product certification.

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The National Accreditation Committee (KAN) accredits product certification bodies (LSPro) in Indonesia, providing a variety of choices for business operators/producers to select an LSPro that can offer services that meet their expectations and needs. This competition among LSPros drives them to focus on strategies to attract customers and provide good customer service, which is key to encouraging repeat usage of services and achieving satisfaction, leading to customer loyalty. According to data from the National Accreditation Committee (KAN) on the website <http://kan.or.id>, there are 130 accredited product certification bodies (LSPro) in Indonesia (KAN site data as of May 1, 2024), including government LSPros, private LSPros, and state-owned enterprise LSPros, each with diverse scopes of goods and/or services. This provides a variety of choices for business operators/producers to select an LSPro that can offer services that meet their expectations and needs.

Such a condition results in business competition among LSPros to attract customers to use product certification services. Each LSPro will focus on strategies to have an advantage over its competitors (Nadira, et al., 2019) [3]. Good customer service is key to encouraging repeat usage of services and achieving satisfaction, leading to customer loyalty (Shbeeb, 2022) [4]. Ardvin Kester, et al., (2022) state that customer loyalty is also related to customer satisfaction; when customer satisfaction increases, loyalty also rises [5]. Zineldin (1999) states that customer satisfaction is a reaction to the fulfillment of expectations before and after receiving services [6].

Zheng Lei, et al., (2022) state that customer satisfaction analysis can use the SERVQUAL dimensions [7]. Naik, et al., (2010) state that the SERVQUAL dimensions have been adapted and used in many service/industry studies [8]. Nguyen, et al., (2018) found that tangibles, responsiveness, assurance, and empathy have significant positive effects on customer satisfaction [9]. Analyzing factors affecting customer satisfaction needs further study to provide a better understanding of customer habits/characteristics in product certification services that have not been extensively conducted.

Hafizha Marianto Putri, et al., (2021) conducted research using the Fuzzy-SERVQUAL method to analyze significant factors affecting halal certification service quality in the food industry in Indonesia [10]. Shafira Rizq, et al., (2018) tested customer satisfaction with public service quality for E-KTP registration using SERVQUAL, Importance Performance Analysis (IPA), and Customer Satisfaction Index (CSI) [11]. Li-xin Cui, et al., (2017) measured the service quality performance of certification and inspection in China's industry using SERVQUAL and Fuzzy TOPSIS methods [12]. Ru Liu, et al., (2014) used fuzzy set theory and the SERVQUAL model to analyze certification and inspection service quality in China's industry [13]. Wendri Wijaya, et al., (2021) researched the impact of employee performance on customer satisfaction in the Motor Vehicle Eligibility Testing and Balai Sertifikasi using SERVQUAL [14]. A Mansur, et al., (2019) combined SERVQUAL and the Kano Model to identify key attributes affecting public service customer satisfaction, also using QFD to prioritize improvements [15]. Ishak Ismail, et al., (2006) used the SERVQUAL model to measure companies' perceptions and expectations of audit firm services [16]. Zheng Lei, et al., (2022) used SERVQUAL and CCSI models to identify key factors affecting satisfaction and loyalty in urban express delivery services [7]. Ida Gremyr, et al., (2021) explored factors contributing to auditee satisfaction in external ISO 9001 audit fieldwork, testing relationships using a case study and the SERVQUAL model [17]. Finally, Mangatas Simanjuntak, et al., (2016) analyzed forestry companies' satisfaction with online forest product management information systems using SERVQUAL to assess gaps between performance and attribute expectations. They also used IPA to measure relationships between quality improvement priorities, known as Quadrant Analysis, and Consumer Perceptions [18].

Windarti and Anggalia (2020) used SWOT analysis with EFE (External Factor Evaluation) and IFE (Internal Factor Evaluation) matrices to understand and analyze strategies for improving customer satisfaction by enhancing service quality [19]. Bonaventura Andhika W's 2020 study examined service quality provided by various delivery service providers and its impact on customer satisfaction using IPA and QFD methods, along with a SWOT analysis to formulate competitive market strategies [20]. Boonyarat, et al., (2014) proposed a combination of Back Propagation Neural Network (BPNN-IPA) Importance-Performance Analysis and SWOT analysis. They determined "Importance" by applying BPNN to customer satisfaction surveys, while "Performance" was calculated as the average satisfaction rating [21]. Rochana (2019) analyzed strategic issues related to patient satisfaction in hospitals using SWOT analysis methods [22].

Research Objectives

The objective of the research is to designing strategies to achieve customer satisfaction and provide recommendations as a reference for future improvement plans in the mandatory product certification service at the Product Certification Body (LSPro) Balai Sertifikasi.

2. Material and Methods

2.1. Product Certification

In accordance with SNI ISO/IEC 17067:2013, the standard for conformity assessment - the fundamentals of product certification and guidelines for product certification schemes, product certification involves an independent third-party verification process to confirm compliance with specific requirements. This verification is conducted by organizations known as product certification bodies, which are expected to adhere to the SNI ISO/IEC 17065 standard. Specific product requirements are usually outlined in standards or other normative documents. Product certification is a well-established process in conformity assessment, providing assurance to consumers, regulators, industry stakeholders, and other interested parties that a product meets established criteria. These criteria include aspects such as product performance, safety, interoperability, and sustainability. Furthermore, product certification plays a crucial role in promoting trade, enabling market access, ensuring fair competition, and building consumer trust at local, regional, and global levels [23].

According to SNI ISO/IEC 17067:2013, the core objective of product certification relates to meeting the needs of consumers, users, and all stakeholders by instilling confidence in the fulfillment of specific requirements. It also enables suppliers to demonstrate to the market that their products have received impartial attestation of compliance from a third-party entity. SNI ISO/IEC 17067:2013 further specifies that product certification schemes should adopt a functional approach, which includes [23]:

- **Selection:** This stage involves planning and preparation activities to gather or generate the necessary information and inputs for subsequent determination steps.
- **Determination:** This step includes assessment activities such as testing, measurement, inspection, design evaluation, service evaluation, and examination to provide information regarding product requirements, serving as inputs for the review and attestation stages.
- **Review:** This stage verifies the adequacy, suitability, and effectiveness of the selection and determination activities, along with their results, in relation to fulfilling the specified requirements.
- **Certification Decision:** This involves making a decision based on the review on whether to certify the product.
- **Attestation:** This stage involves issuing a statement of conformity, based on the decision made during the review process, confirming that the product has demonstrated compliance with the specified requirements.
- **Surveillance (if required):** Surveillance involves the systematic iteration of conformity assessment activities to maintain the validity of the statement of conformity.

According to SNI ISO/IEC 17065:2012, the standard for conformity assessment - requirements for bodies certifying products, processes, and services, the primary goal of product certification is to instill confidence in all stakeholders that products meet specified requirements. The value of certification lies in the level of confidence and trust built through competent and impartial third-party demonstration of compliance with specified requirements. SNI ISO/IEC 17065:2012 also states that product certification schemes serve as a means to ensure adherence to standards and other normative documents. Some product certification schemes may involve initial testing and assessment of the supplier's quality management system, followed by ongoing surveillance considering the factory's quality system and sample testing from the factory and open market [24].

2.2. Indonesian National Standard (SNI)

According to the Law of the Republic of Indonesia Number 20 of 2014 concerning Standardization and Conformity Assessment, the Indonesian National Standard (SNI) is a standard established by BSN (National Standardization Agency) and applies throughout the territory of the Republic of Indonesia. The implementation of SNI involves applying SNI requirements to Goods, Services, Systems, Processes, or Personnel.

According to the Regulation of the Minister of Industry of the Republic of Indonesia Number 86/M-IND/PER/9/2009 concerning Indonesian National Standards in the Industrial Sector, producers manufacturing goods and/or services for which SNI is mandatory must comply with the provisions, implement SNI, possess the SNI Usage Product Certificate (SPPT SNI) issued by a Product Certification Body, and affix the SNI mark on every product, packaging, and/or label of their production. SPPT SNI is a certificate given to producers capable of producing goods and/or services that meet SNI requirements.

2.3. Product Certification Bodies (LSPro)

According to the Law of the Republic of Indonesia Number 20 of 2014 concerning Standardization and Conformity Assessment, certification is a series of conformity assessment activities related to providing written assurance that Goods, Services, Systems, Processes, or Personnel meet Standards and/or regulations.

According to the Regulation of the Minister of Industry of the Republic of Indonesia Number 86/M-IND/PER/9/2009 concerning Indonesian National Standards in the Industrial Sector, a Product Certification Body is an organization that conducts product certification activities. LSPro can carry out product certification activities after receiving designation from the technical ministry, which grants the authority by the Minister to issue SPPT SNI to LSPro for the mandatory enforcement of SNI.

2.4. SERVQUAL (Service Quality)

The concept of service quality is closely related to the idea of perception and expectation (Parasuraman et al., 1988) [25]. The SERVQUAL method assesses the gap between the anticipated service expectations (perceived service) and the actual perceptions of the service received. In this model, when the performance of specific attributes exceeds related expectations, the perception of service quality will be positive, and vice versa (Shafira Rizq et al., 2018) [11]. The SERVQUAL tool consists of five dimensions of service quality: Tangibility, Reliability, Responsiveness, Assurance, and Empathy (Parasuraman et al., 1988) [25]. The explanation for each dimension is outlined as follows (A Mansur et al., 2019) [15]:

- Tangibility: This dimension includes the performance of physical facilities, equipment, and the appearance of employees.
- Reliability: This relates to the ability to accurately and consistently deliver promised services.
- Responsiveness: This dimension concerns the readiness to help customers promptly.
- Assurance: This involves employees' knowledge and competence in building trust and confidence.
- Empathy: This dimension emphasizes the care and attention given to each customer individually.

2.5. SWOT Analysis

SWOT Analysis (Strength, Weakness, Opportunity, Threat) serves as a fundamental approach for evaluating and positioning an organization's resources and external environment into four distinct domains: Strengths, Weaknesses, Opportunities, and Threats, as outlined by Boonyarat et al., (2014) [21]. Strengths and Weaknesses represent internal factors that can either enhance or hinder the organization's efforts to achieve its mission. Conversely, Opportunities and Threats encompass external factors that facilitate or impede the organization's mission (Robert G. Dyson, 2002) [26].

The Internal Factors Evaluation (IFE) Matrix is designed to depict internal strategic factors relating to the organization's strengths and weaknesses. The External Factors Evaluation (EFE) Matrix, on the other hand, is created to consolidate external strategic factors regarding the organization's opportunities and threats (Windarti, 2020) [19]. SWOT analysis compares an organization's external and internal factors. Here is a brief explanation of the SWOT concept Fajar Supanto, 2019) [27]:

- Strength: All internal conditions of the organization needed to maximize its activities, such as a good reputation, superior knowledge and skills, competent team members, etc.
- Weakness: Internal deficiencies that hinder the organization's activities from being fully carried out, such as lack of funds, unskilled new members, lack of technology, insufficient knowledge /competence, etc.
- Opportunities: Positive external environmental factors that can direct the organization's activities towards achieving its goals, such as external demands aligned with organizational goals, public demand for change, lack of competitors seeing the opportunity, etc.
- Threats: External environmental factors that can hinder the organization's progress, such as public skepticism towards the organization, the presence of competitors, etc.

Strategic targets are selected based on information generated from the SWOT analysis into a TOWS Matrix. This approach helps managers develop four strategies (Isniati et al., 2019) [28]:

- Strengths–Opportunities Strategies (SO Strategies): Strategies that utilize strengths to exploit opportunities.
- Weaknesses–Opportunities Strategies (WO Strategies): Strategies to overcome weaknesses by exploiting opportunities.
- Weaknesses–Threats Strategies (WT Strategies): Strategies that minimize weaknesses by avoiding threats.

- Strengths–Threats Strategies (ST Strategies): Strategies that utilize strengths to eliminate threats.

2.6. Focus Group Discussion (FGD)

The Focus Group Discussion (FGD) is a qualitative data collection method commonly used by decision-makers and researchers due to its relatively quick, cost-effective, and designed nature to uncover information about participants' desires, needs, perspectives, beliefs, and experiences (Astridya Paramita et al., 2013) [29]. FGD is highly valued and frequently used recently due its practical, economic, high validity, and rapid results (Krueger, 1988) [30]. Many authors agree that FGD is beneficial because it leverages social interaction to generate data (Merton et al., 1990) [31]. The use of social interaction distinguishes it from other qualitative research methodologies (Merton et al., 1990) [31].

FGD is used to elicit intersubjective meanings that are difficult for researchers to understand due to their subjective limitations (Kresno S et al., 1999) [32]. Therefore, FGD employs open-ended questions that allow participants to provide answers along with explanations (Krueger, 1988) [30]. This technique differs from other group discussion methods, such as the Delphi process, brainstorming, and nominal group, which aim to achieve consensus and solve problems based on the agreement of all parties (Krueger, 1988) [30].

2.7. Sampling and Process of Data Collection

Beginning with a literature review to establish the background, identify research gaps, formulate the problem statement, set the research objectives, define the scope of the study, and determine the research methods. The next step is to identify the SERVQUAL dimension attributes for the mandatory SNI product certification services at LSPro Balai Sertifikasi.

Following this, a questionnaire is designed based on the SERVQUAL dimensions and the number of respondents, who are new customers or users of the mandatory SNI product certification services at LSPro Balai Sertifikasi, is determined. The survey period spans from January 2024 to March 2024, involving 21 new customers. The collected data is then analyzed to identify the gap between customer expectations and the perceived quality of service performance. A customer satisfaction strategy is developed using SWOT analysis, and the findings are reported in the research report.

2.8. The Stages of SERVQUAL

The concept of service quality in contemporary settings involves a nuanced comparison between the perceived expectations of customers and the actual service delivery. This comparison is mathematically represented by the equation $SQ = P - H$, where SQ represents the service quality score, P the perception or performance score, and H the expectation score, as represented by Equation (1).

$$SQ = P - H \quad \dots\dots\dots(1)$$

The service quality gap can be calculated through three distinct methods (Purnamasari et al., 2020) [33]: item-by-item, dimension-by-dimension, or as a single measure. The item-by-item approach involves subtracting each expectation from the corresponding perception, while the dimension-by-dimension approach involves averaging the perceptions and expectations across each dimension. The single-measure approach involves averaging the perceptions and expectations across all items.

The quality of service can be analyzed using the equation $Q = P/H$, where Q represents the quality score. This equation indicates that if the quality score is greater than one, the service quality exceeds expectations; if it is equal to one, the service quality matches expectations; and if it is less than one (negative gap), the service quality falls short of expectations (Prananda et al., 2019) [34].

$$\text{Quality (Q)} = \frac{\text{Perception or Performance (P)}}{\text{Expectation (H)}} \quad (2)$$

The concept of a gap between perceptions and expectations was first introduced by Parasuraman et al. in 1988. This gap represents the difference between what customers expect and what they actually receive. If expectations are met or exceeded, it indicates that the service has fulfilled customer needs. Conducting a gap analysis helps service providers assess their service quality based on customer perceptions and identify areas for improvement within the five service quality dimensions.

To conduct service quality research, a questionnaire utilizing the Likert scale is necessary. This scale quantifies individual or collective attitudes, opinions, and perceptions regarding a specific phenomenon. The Likert scale intervals are detailed in Table 1.

Table 1 Likert Scale

Scale	Description
5	Very Easy/Fast/Appropriate/Good/Clear/Comfortable/Satisfactory/Important
4	Easy/Fast/Appropriate/Good/Clear/Comfortable/Satisfactory/Important
3	Quite Easy/Fast/Appropriate/Good/Clear/Comfortable/Satisfactory/Important
2	Not Easy/Fast/Appropriate/Good/Clear/Comfortable/Satisfactory/Important
1	Very Not Easy/Fast/Appropriate/Good/Clear/Comfortable/Satisfactory/Important

2.9. The Stages of SWOT Analysis

The SWOT Analysis method is used to identify internal and external factors in a situation. Internal factors include strengths and weaknesses, while external factors include opportunities and threats. This analysis aims to maximize internal factors while minimizing external factors, which can aid planners in determining organizational goals and mission, as well as strategic decision-making. The next step involves calculating the external factor matrix, which helps identify external factors such as opportunities and threats. Once the differences between strengths and weaknesses, as well as opportunities and threats, are determined, the IE (Internal – External) matrix can be depicted. The purpose of depicting the IE matrix is to identify the type of strategy from which quadrant is most suitable for LSPro Balai Sertifikasi.

2.10. Quantitative Strategic Planning Matrix (QSPM)

The Quantitative Strategic Planning Matrix (QSPM) conceptually evaluates the relative attractiveness of various strategies based on critical internal and external success factors. The QSPM can be used in the decision-making stage to assess the relative degree of alternatives generated from the matching stage. The six stages of preparing a QSPM Matrix are as follows (Dinh Ba Hung Anh, et al., 2019) [35]:

- List the key internal strengths and weaknesses, as well as external opportunities and threats of LSPro derived from the IFE and EFE Matrices.
- Assign weights to each internal and external factor based on the weights in the IFE and EFE Matrices.
- Evaluate stage 2 of the matrix and identify alternative strategies that LSPro should consider.
- Determine the attractiveness score (AS), which is an identifier number for each strategy within the alternatives. The range of values starts from 1 for not attractive, 2 for somewhat attractive, 3 for reasonably attractive, and 4 for very attractive.
- Calculate the total attractiveness score (TAS), which is obtained by multiplying the weight by the AS.
- Calculate the total attractiveness values. The highest TAS value indicates that the strategy is the best priority strategy.

3. Results and Discussion

3.1. SERVQUAL (Service Quality) Results

Several service elements were obtained from Ministerial Regulation Number 14 of 2017 on Guidelines for Formulating Public Service Satisfaction Surveys of Public Service Unit Administrators [36]. Subsequently, researcher then conducted a discussion with 6 experts in the field of product certification services to further specify the service elements. This research discusses the service elements of the mandatory SNI product certification services at the Product Certification Body (LSPro) Balai Sertifikasi to assess the satisfaction levels of service users. These service elements are listed in Table 2.

Table 2 Service Elements of Mandatory SNI Product Certification

Code	Service Element
U1	Ease of managing and meeting the requirements for product certification services
U2	Availability of adequate facilities and infrastructure and comfort of the waiting room
U3	Transparency of information regarding procedures and clarity of the product certification service flow
U4	Ease of obtaining information on the progress of the product certification process
U5	Compliance with the promised SLA (Service Level Agreement) time for the product certification process, from the time the documents are declared complete until the certificate is issued
U6	Timeliness of the factory audit process and product sampling conducted by the LSPro auditor team
U7	Transparency regarding the details of fees/costs for product certification services
U8	Reasonableness of fees/costs in product certification services
U9	Consistency between the service products listed in the service standards and the results provided
U10	Clarity of information provided by the service staff
U11	Competence of the audit team in conducting factory audits
U12	Politeness and friendliness of the service staff
U13	Politeness and friendliness of the audit team in carrying out their duties
U14	Neatness of service staff
U15	Neatness of the audit team
U16	Speed and responsiveness of staff in serving
U17	Response to customer complaints
U18	Variety of product scopes at LSPro that can be certified for SNI products
U19	Branding/Good Name of LSPro
U20	Ease of obtaining information about LSPro Balai Sertifikasi accessible both in print and digital forms/media
U21	Latest regulations stipulating that only micro/small and medium enterprises can be served by LSPro Balai Sertifikasi for new certification/re-certification

Next, these elements are classified into SERVQUAL dimensions as shown in Table 3.

Table 3 SERVQUAL Dimensions

Dimension	Code of Service Elements
Tangibility	U2; U14; U15
Reliability	U4; U5; U6; U18; U20
Responsiveness	U1; U16; U17
Assurance	U3; U7; U8; U9; U11; U19; U21
Empathy	U10; U12; U13

The research instrument, in the form of questionnaires to measure perception or performance (P) values and expectation (H) values, underwent validity and reliability testing. This evaluation was conducted using Google Forms, where 6 (six) experts assessed the attributes or dimensions of service elements to be used in each questionnaire, with a rating range from 1 (Not Suitable) to 5 (Very Suitable).

To validate the questionnaires used in the study, Microsoft Excel software was employed for calculations. The validity of the factors was assessed by correlating the factor scores with the total factor scores. To determine the suitability of each item, a significance test was used, calculating the R-value for each factor or element and comparing it to the R-table value with a significance level of 0.05 (Puspasari et al., 2022) [37]. If the calculated R-value exceeds the R-table value, the attribute or dimension of the service element is deemed valid; otherwise, it is not (Triana, 2013) [38]. The results are presented in Tables 4 and 5, indicating that each attribute or dimension of the service elements is valid, confirming the reliability and validity of both the Expectations and Performance questionnaires for assessing service quality at LSPro Balai Sertifikasi.

Table 4 Results of Questionnaire Validity Test for Expectations (H)

Expe rts	U1	U2	U3	U4	U5	U6	U7	U8	U9	U10	U11	U12	U1 3	U14	U1 5	U1 6	U17	U1 8	U19	U2 0	U2 1
A	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	4
B	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	4	5	5	5
C	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	4
D	4	4	4	4	4	5	4	5	4	4	4	4	5	4	5	5	4	4	4	5	4
E	4	4	3	4	4	4	3	4	4	4	4	3	4	4	4	4	4	3	4	4	3
F	4	4	5	5	5	5	4	5	4	5	5	4	5	4	5	5	4	4	4	5	4
R- Calcu lated	0.8 399 64	0.8 399 64	0.8 025 11	0.8 774 18	0.8 774 18	0.8 36 66	0.8 519 25	0.8 36 66	0.8 399 64	0.8 774 18	0.8 774 18	0.8 519 25	0.8 36 66	0.8 399 64	0.8 36 66	0.8 36 66	0.8 399 64	0.7 93 56	0.8 399 64	0.8 36 66	0.7 93 56
R- Tabl e	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 74 27	0.7 742 7	0.7 74 27	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 74 27	0.7 742 7	0.7 74 27	0.7 74 27	0.7 742 7	0.7 74 27	0.7 742 7	0.7 74 27	0.7 74 27
Valid ity	VAL ID	VAL ID	VAL ID	VAL ID	VAL ID	VA LID	VAL ID	VA LID	VAL ID	VAL ID	VAL ID	VAL ID	VA LID	VAL ID	VA LID	VA LID	VAL ID	VA LID	VAL ID	VA LID	VA LID

Table 5 Results of Questionnaire Validity Test for Performance (P)

Expe rts	U1	U2	U3	U4	U5	U6	U7	U8	U9	U1 0	U1 1	U1 2	U1 3	U1 4	U1 5	U1 6	U1 7	U1 8	U1 9	U2 0	U2 1
A	4	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	4	5	5	4	5
B	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	4
C	5	5	5	5	5	5	5	5	5	5	4	4	5	5	5	4	5	5	5	5	5
D	4	4	5	4	5	4	5	4	4	4	4	4	5	5	4	4	4	4	4	5	5
E	3	4	4	4	4	4	4	3	4	4	3	3	4	4	3	3	3	4	4	3	3
F	4	4	4	4	4	4	4	4	3	3	4	4	4	4	4	4	4	4	4	3	3
R- Calc ulate d	0.8 321 39	0.9 028 94	0.9 257 41	0.9 028 94	0.9 257 41	0.9 028 94	0.9 257 41	0.8 321 39	0.8 479 51	0.8 479 51	0.8 102 41	0.8 102 41	0.9 257 41	0.9 257 41	0.7 883 42	0.8 102 41	0.8 321 39	0.9 028 94	0.9 028 94	0.8 21 55	0.7 880 17
R- Tabl e	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 742 7	0.7 74 27	0.7 742 7
Valid ity	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID	VA LID

Next, a reliability test was conducted to determine the consistency of the questionnaire, and whether it can be relied upon (reliable) and remain consistent. The reliability test utilized Minitab 22 software and Cronbach's Alpha, a commonly used technique. Data is considered reliable if it has an alpha value greater than 0.7 (Daoud et al., 2021) [39]. The Cronbach's Alpha values for expectations and performance were 0.9758 and 0.9782, respectively. The gap between customer expectations and the performance perceived by new customers for all attributes or dimensions of mandatory SNI product certification service elements was then calculated. The gap values for all dimensions are found in Table 6

Service Elements Gaps for Mandatory SNI Product Certification. From Table 6, the quality value (Q) can be calculated using the equation $Quality (Q) = Performance (P) / Expectation (H)$. The calculation results are shown in Table 7 Quality Values for Each Dimension.

Table 6 Service Elements Gaps for Mandatory SNI Product Certification (21 new customers as respondents)

Dimension	Code	Service Elements	Performance (P)	Expectation (H)	Gap (P - H)	Quality Value (Q=P/H)
Tangibility	U2	Availability of adequate facilities and infrastructure and comfort of the waiting room	4.810	4.476	0.333	1.074
	U14	Neatness of service staff	4.095	4.905	-0.810	0.835
	U15	Neatness of the audit team	4.429	4.857	-0.429	0.912
Average			4.444	4.746	-0.302	
Reliability	U4	Ease of obtaining information on the progress of the product certification process	3.000	5.000	-2.000	0.600
	U5	Compliance with the promised SLA (Service Level Agreement) time for the product certification process, from the time the documents are declared complete until the certificate is issued	3.810	5.000	-1.190	0.762
	U6	Timeliness of the factory audit process and product sampling conducted by the LSPro auditor team	4.476	4.667	-0.190	0.959
	U18	Variety of product scopes at LSPro that can be certified for SNI products	4.286	4.714	-0.429	0.909
	U20	Ease of obtaining information about LSPro Balai Sertifikasi accessible both in print and digital forms/media	3.000	4.905	-1.905	0.612
Average			3.714	4.857	-1.143	
Responsiveness	U1	Ease of managing and meeting the requirements for product certification services	3.476	4.905	-1.429	0.709
	U16	Speed and responsiveness of staff in serving	3.333	5.000	-1.667	0.667
	U17	Response to customer complaints	3.095	5.000	-1.905	0.619
Average			3.302	4.968	-1.667	
Assurance	U3	Transparency of information regarding procedures and clarity of the product certification service flow	4.095	4.762	-0.667	0.860
	U7	Transparency regarding the details of fees/costs for product certification services	4.143	4.952	-0.810	0.837
	U8	Reasonableness of fees/costs in product certification services	3.476	5.000	-1.524	0.695

	U9	Consistency between the service products listed in the service standards and the results provided	4.762	4.905	-0.143	0.971
	U11	Competence of the audit team in conducting factory audits	4.571	4.810	-0.238	0.950
	U19	Branding/Good Name of LSPro	4.381	4.714	-0.333	0.929
	U21	Latest regulations stipulating that only micro/small and medium enterprises can be served by LSPro Balai Sertifikasi for new certification/re-certification	4.571	4.048	0.524	1.129
Average			4.286	4.741	-0.456	
Empathy	U10	Clarity of information provided by the service staff	4.238	4.810	-0.571	0.881
	U12	Politeness and friendliness of the service staff	4.524	4.857	-0.333	0.931
	U13	Politeness and friendliness of the audit team in carrying out their duties	4.571	4.857	-0.286	0.941
Average			4.444	4.841	-0.397	

Table 7 Quality Values for Each Dimension

No	Dimension	Performance P	Expectation H	Gap (P - H)	Quality Value (Q=P/H)
1	Tangibility	4.444	4.746	-0.302	0.936
2	Reliability	3.714	4.857	-1.143	0.765
3	Responsiveness	3.302	4.968	-1.667	0.665
4	Assurance	4.286	4.741	-0.456	0.904
5	Empathy	4.444	4.841	-0.397	0.918
Average		4.038	4.831	-0.793	0.838

The calculation results show a quality value (Q) of 0.838, or $Q < 1$, and the gap value between performance (P) and expectation (H) is negative. This indicates that the current service quality perceived by customers is below their expectations, which can lead to customer dissatisfaction.

3.2. SWOT Analysis Results

SWOT consists of two factors, namely internal factors and external factors. In this research, these factors are classified from the SERVQUAL elements, which have 16 internal factors and 5 external factors in Table 8. Internal and external factors are assessed and weighted by customers to determine the current position of LSPro Balai Sertifikasi on the IE matrix to select appropriate strategies. The calculation results of internal and external factor matrices are presented in Tables 9 and Table 10.

From the calculation of IFE and EFE, it is known that the total score of the IFE matrix is 3.373 and the total score of the EFE matrix is 2.844. This information indicates that LSPro Balai Sertifikasi is positioned in quadrant IV of the IE matrix, signifying growth and development. The results of the IE matrix can be seen in Figure 1 IE Matrix of LSPro Balai Sertifikasi.

Table 8 Classification of Service Elements into SWOT (Strength, Weakness, Opportunities and Threats)

Code	Service Elements
Strength	
U1	Ease of managing and meeting the requirements for product certification services
U2	Availability of adequate facilities and infrastructure and comfort of the waiting room
U6	Timeliness of the factory audit process and product sampling conducted by the LSPro auditor team
U7	Transparency regarding the details of fees/costs for product certification services
U9	Consistency between the service products listed in the service standards and the results provided
U10	Clarity of information provided by the service staff
U11	Competence of the audit team in conducting factory audits
U13	Politeness and friendliness of the audit team in carrying out their duties
U15	Neatness of the audit team
U19	Branding/Good Name of LSPro
Weakness	
U3	Transparency of information regarding procedures and clarity of the product certification service flow
U4	Ease of obtaining information on the progress of the product certification process
U12	Politeness and friendliness of the service staff
U14	Neatness of service staff
U16	Speed and responsiveness of staff in serving
U17	Response to customer complaints
Opportunities	
U5	Compliance with the promised SLA (Service Level Agreement) time for the product certification process, from the time the documents are declared complete until the certificate is issued
U8	Reasonableness of fees/costs in product certification services
U18	Variety of product scopes at LSPro that can be certified for SNI products
Threats	
U20	Ease of obtaining information about LSPro Balai Sertifikasi accessible both in print and digital forms/media
U21	Latest regulations stipulating that only micro/small and medium enterprises can be served by LSPro Balai Sertifikasi for new certification/re-certification

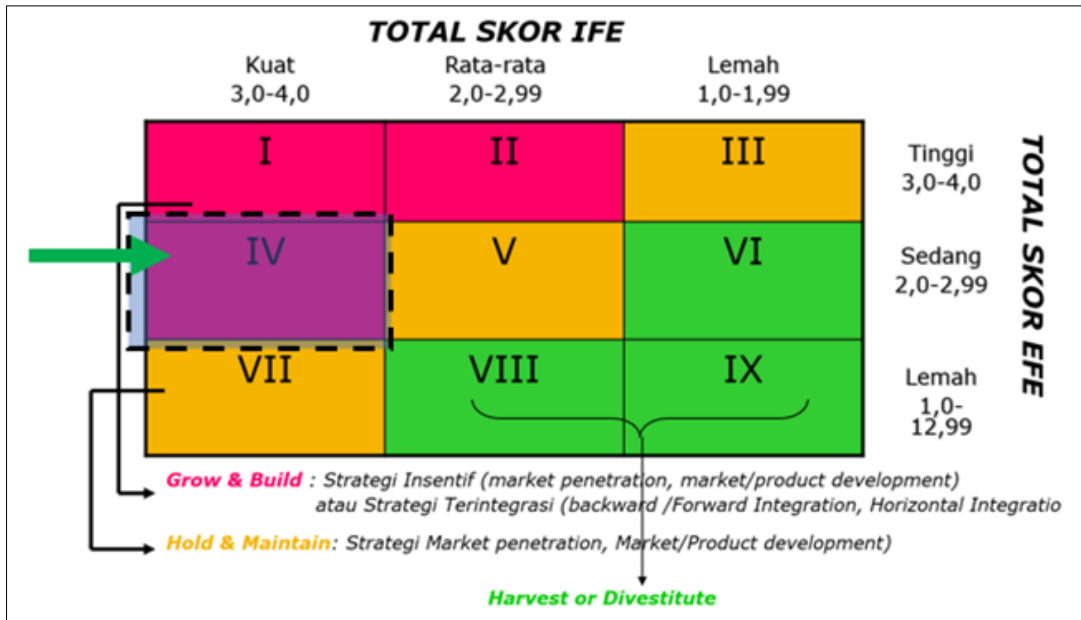
Table 9 Internal Factors Matrix (IFE Matrix)

Code	Internal Factors	Weights	Rating	Score
U1	Ease of managing and meeting the requirements for product certification services	0.057	3.357	0.192
U2	Availability of adequate facilities and infrastructure and comfort of the waiting room	0.050	3.952	0.200
U3	Transparency of information regarding procedures and clarity of the product certification service flow	0.055	3.381	0.185

U4	Ease of obtaining information on the progress of the product certification process	0.094	2.214	0.208
U6	Timeliness of the factory audit process and product sampling conducted by the LSPro auditor team	0.057	4.000	0.227
U7	Transparency regarding the details of fees/costs for product certification services	0.061	3.786	0.233
U9	Consistency between the service products listed in the service standards and the results provided	0.075	4.000	0.299
U10	Clarity of information provided by the service staff	0.063	3.214	0.204
U11	Competence of the audit team in conducting factory audits	0.054	3.905	0.212
U12	Politeness and friendliness of the service staff	0.065	3.810	0.247
U13	Politeness and friendliness of the audit team in carrying out their duties	0.056	4.000	0.225
U14	Neatness of service staff	0.046	3.357	0.155
U15	Neatness of the audit team	0.052	3.714	0.193
U16	Speed and responsiveness of staff in serving	0.069	2.548	0.176
U17	Response to customer complaints	0.060	2.071	0.125
U19	Branding/Good Name of LSPro that you have chosen currently in the product certification process	0.085	3.476	0.295
IFE Total Score		1.000		3.373

Table 10 External Factors Matrix (EFE Matrix)

Code	External Factors	Weights	Rating	Score
U5	Compliance with the promised SLA (Service Level Agreement) time for the product certification process, from the time the documents are declared complete until the certificate is issued	0.243	3.000	0.729
U8	Reasonableness of fees/costs in product certification services	0.269	3.143	0.846
U18	Variety of product scopes at LSPro that can be certified for SNI products	0.205	3.071	0.629
U20	Ease of obtaining information about LSPro Balai Sertifikasi accessible both in print and digital forms/media	0.140	2.238	0.314
U21	Latest regulations stipulating that only micro/small and medium enterprises can be served by LSPro Balai Sertifikasi for new certification/re-certification	0.143	2.286	0.327
EFE Total Score		1.000		2.844



Source: Processed data

Figure 1 IE Matrix of LSPro Balai Sertifikasi

After that, conducting qualitative observation and benchmarking against other product certification bodies or competitors, LSPro Balai Sertifikasi gathered information about the current conditions. This information is highly beneficial in formulating strategies to improve its services and meet customer satisfaction. The results are presented in the table below.

Table 11 Benchmarking Results with LSPro Balai Sertifikasi’s Competitors

LSPro XCX Condition	LSPro XLS Condition	LSPro BXX Condition
<p>The institution has a website serving as an information source.</p> <p>It offers a website-based application for submitting SNI product certification requests.</p> <p>The public can access and download SNI product certification documents, forms, and requirements.</p> <p>The certification process explanation is still too simple or lacks detail.</p> <p>The institution has a responsive channel for handling complaints and feedback.</p> <p>It collaborates with several institutions to support certification services.</p> <p>The institution provides clear information on the scope of certification products.</p> <p>It uses interactive social media to disseminate service information.</p>	<p>The institution has a website serving as an information source.</p> <p>It does not have an application for submitting SNI product certification requests, still using email.</p> <p>The public can access and download SNI product certification documents, forms, and requirements.</p> <p>The certification process explanation is detailed.</p> <p>The institution has a channel for handling complaints and feedback.</p> <p>It frequently conducts activities or promotional events related to certification products for business/industry.</p> <p>The institution provides clear information on the scope of certification products.</p> <p>It uses interactive social media to disseminate service information.</p> <p>The institution has an automatic chatbox and WhatsApp for interactive discussions with potential customers.</p> <p>The institution does not publicly display certification service pricing information.</p>	<p>The institution has a website serving as an information source.</p> <p>It does not have an application for submitting certification requests, still using email.</p> <p>The public can access and download certification documents, forms, and requirements.</p> <p>The certification process explanation lacks detail.</p> <p>The institution has a channel for handling complaints and feedback.</p> <p>The institution provides clear information on the scope of certification products.</p> <p>It collaborates with several institutions to support certification services.</p> <p>It uses social media, but it is less interactive.</p>

<p>The institution has an automatic chatbox for interactive discussions with potential customers.</p> <p>The institution does not publicly display certification service pricing information.</p> <p>The institution lacks a website feature for tracking certification processes.</p>	<p>The institution lacks a website feature for tracking certification processes.</p>	<p>It does not have an automatic chatbox, only using WhatsApp for interactive discussions.</p> <p>The institution publicly displays certification service pricing information.</p> <p>The institution lacks a website feature for tracking certification processes.</p>
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The current quality condition for LSPro Balai Sertifikasi in providing its services is low, with a significant gap to achieve a quality score of Q=1. The dimensions of reliability include ease of obtaining information on certification product progress (Q=0.60) and ease of accessing information about LSPro Balai Sertifikasi, both in print and digital formats (Q=0.612). Additionally, the dimension of responsiveness includes response to customer complaints (Q=0.612), the speed and responsiveness of staff in serving (Q=0.667), and ease in meeting SNI certification product requirements (Q=0.709). The benchmarking results against LSPro competitors will be used as a reference in designing and determining several strategies to improve LSPro Balai Sertifikasi's services and achieve customer satisfaction for SNI mandatory certification products.

3.3. QSPM Results

The findings from the SWOT analysis and competitor benchmarking are incorporated into strategic discussions to inform the development of a customer satisfaction enhancement plan. The Quantitative Strategic Planning Matrix (QSPM) was used to evaluate the proposed strategic solutions and aid in integrating relevant internal and external factors into the decision-making process. The QSPM matrix can be utilized in the decision-making stage to assess the relative attractiveness level of alternatives generated from the adjustment stage. The qualitative SWOT matrix can be viewed in Table 12 SWOT Matrix.

The results of the SWOT matrix yielded two S-O strategies, three W-O strategies, three S-T strategies, and two W-T strategies. These strategies were the outcome of discussions with six experts at LSPro Balai Sertifikasi, each with over fifteen years of experience in mandatory SNI product certification services. Subsequently, the QSPM matrix was utilized to evaluate the proposed strategic solutions and aid in integrating relevant internal and external factors into the decision-making process. The QSPM matrix aimed to determine which alternative strategies should be given top priority to achieve customer satisfaction for LSPro Balai Sertifikasi.

The six experts were requested to provide weights and attractiveness scores (AS) via a Google Form for each strategy alternative. The weight values assigned to each strategy alternative ranged from 0 to 1 and were then averaged. As for assigning attractiveness scores (AS) to each strategy alternative, the range started from 1 for not interested, 2 for somewhat interested, 3 for quite interested, and 4 for very interested, followed by calculating the average. The total Attractiveness Score (TAS) was computed by multiplying the weight by the AS value. The highest TAS value indicated the prioritized strategy. The calculation results from the QSPM matrix can be observed in the Table 13.

Table 12 SWOT Matrix

<p>EFE</p> <p>IFE</p>	<p>Strength (S)</p> <p>Ease in handling and fulfilling the service certification product requirements at LSPro</p> <p>Availability of adequate facilities and amenities, as well as comfort in LSPro waiting rooms</p> <p>Timeliness in the factory audit process and sample collection conducted by LSPro auditors and sampling officers</p> <p>Clarity regarding the details of service certification product tariffs/fees</p> <p>Consistency of service product items listed in the service standards with the provided outcomes</p> <p>Clarity of information provided by the attending staff</p> <p>Competence of the audit team in conducting factory audits</p> <p>Politeness and friendliness of the audit team in performing their duties</p> <p>Neatness of the audit team while on duty</p> <p>Branding of LSPro chosen in the current product certification process</p>	<p>Weakness (W)</p> <p>Transparency and clarity are still perceived as lacking regarding information about the procedures and clarity of the service certification product process</p> <p>Difficulty in obtaining information about the progress of the product certification work</p> <p>Politeness and friendliness of the service staff are still perceived as lacking</p> <p>Neatness of the service staff in serving is still perceived as lacking</p> <p>Speed and responsiveness of the service staff in serving are still perceived as lacking</p> <p>Response of the service staff to customer complaints is still perceived as lacking</p>
<p>Opportunity (O)</p> <p>Compliance with the promised Service Level Agreement (SLA) timeframe for the certification process from when documents are declared complete to when certificates are issued</p> <p>Reasonableness/competitive level of fees/costs in the certification service</p> <p>Range of products owned by LSPro that can undergo varied certification processes</p>	<p>Strategy S-O</p> <p>Enhance promotion emphasizing the superiority of the variety of SNI product scope to attract the attention of customers needing diverse SNI product scope certifications.</p> <p>Strengthen internal monitoring and evaluation systems to ensure consistency in meeting SLA time compliance promises.</p>	<p>Strategy W-O</p> <p>Implementing an online tracking system allows customers to view their certification jobs' real-time progress and access up-to-date information.</p> <p>Providing specialized training for customer service staff to enhance their communication and service skills, as well as ensuring prompt responses to customer information requests.</p> <p>Organizing customer workshop sessions or forums to listen to their feedback regarding information deficiencies and addressing them as needed.</p>
<p>Threats (T)</p> <p>Obtaining information about LSPro Balai Sertifikasi that can be obtained / accessed / reached, both in print</p>	<p>Strategy S-T</p> <p>LSPro can leverage the advantage of having adequate facilities and infrastructure to expand their</p>	<p>Strategy W-T</p> <p>Establishing a rapid response team tasked with proactively addressing customer complaints</p>

<p>and digital formats, is still perceived as difficult by customers.</p> <p>Recent regulations stipulating that only micro/small and medium-scale businesses can be served by LSPro Balai Sertifikasi for new / recertification.</p>	<p>information reach through online platforms and social media.</p> <p>Building partnerships with educational institutions or industry associations to enhance accessibility to information about LSPro Balai Sertifikasi for potential customers.</p> <p>Actively participating in industry discussions and seminars to disseminate information about the latest regulations and provide better understanding to customers.</p>	<p>and providing satisfactory solutions.</p> <p>Regularly monitoring regulatory changes and swiftly adapting service procedures to ensure compliance and maintain customer satisfaction.</p>
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Table 13 QSPM Matrix

No	Strategy Alternative	Weights	AS (Attractiveness Score)	TAS (Total Attractiveness Score)	RANKING
1	Enhance promotion emphasizing the superiority of the variety of SNI product scope to attract the attention of customers needing diverse SNI product scope certifications (SO-1)	0.095	4.000	0.380	IV
2	Strengthen internal monitoring and evaluation systems to ensure consistency in meeting SLA time compliance promises. (SO-2)	0.093	4.000	0.373	V
3	Implementing an online tracking system allows customers to view their certification jobs' real-time progress and access up-to-date information. (WO-1)	0.128	4.000	0.513	I
4	Providing specialized training for customer service staff to enhance their communication and service skills, as well as ensuring prompt responses to customer information requests. (WO-2)	0.105	3.167	0.333	VII
5	Organizing customer workshop sessions or forums to listen to their feedback regarding information deficiencies and addressing them as needed. (WO-3)	0.095	2.833	0.269	VIII
6	LSPro can leverage the advantage of having adequate facilities and infrastructure to expand their information reach through online platforms and social media. (ST-1)	0.070	2.667	0.187	X
7	Building partnerships with educational institutions or industry associations to enhance accessibility to information about LSPro Balai Sertifikasi for potential customers. (ST-2)	0.110	3.667	0.403	III

8	Actively participating in industry discussions and seminars to disseminate information about the latest regulations and provide better understanding to customers. (ST-3)	0.088	2.333	0.206	IX
9	Establishing a rapid response team tasked with proactively addressing customer complaints and providing satisfactory solutions. (WT-1)	0.120	4.000	0.480	II
10	Regularly monitoring regulatory changes and swiftly adapting service procedures to ensure compliance and maintain customer satisfaction. (WT-2)	0.095	3.667	0.348	VI

4. Conclusion

The research aimed to develop a customer satisfaction strategy for SNI product certification services at LSPro Balai Sertifikasi, yielding the following findings:

Initially, a gap analysis was conducted using the SERVQUAL method to assess the disparity between customer expectations and perceived service quality. The calculation resulted in a quality score (Q) of 0.838 and negative gap, indicating that the service quality received by customers falls short of their expectations, potentially leading to dissatisfaction.

Next, a SWOT analysis was performed, categorizing internal and external factors. In this study, these factors were classified based on the SERVQUAL components, comprising 16 internal and 5 external factors. The internal and external factors were evaluated and weighted by customers to determine LSPro Balai Sertifikasi's current position on the IE matrix, allowing for the selection of suitable strategies. The total score for the internal factor evaluation (IFE) was 3.373, and the total score for the external factor evaluation (EFE) was 2.844. These results indicate that LSPro Balai Sertifikasi is currently positioned in the IV quadrant of the IE matrix, indicating growth and development.

The SWOT matrix results revealed two S-O strategies, three W-O strategies, three S-T strategies, and two W-T strategies. These strategies were the outcome of discussions with six experts at LSPro Balai Sertifikasi, each with over 15 years of experience in the field of SNI product certification services.

Additionally, the QSPM matrix can be used in the decision-making stage to assess the relative attractiveness of alternatives generated from the matching stage. The results of the SWOT analysis were evaluated and weighted on the QSPM matrix to determine the total attractiveness score (TAS) for each strategy proposed. The total attractiveness score yielded the following order of strategies with high attractiveness for implementation, aiming to achieve customer satisfaction for SNI product certification services at LSPro Balai Sertifikasi, which is:

- Implementing an online tracking system allows customers to view their certification jobs' real-time progress and access up-to-date information. (Strategy WO-1)
- Establishing a rapid response team tasked with proactively addressing customer complaints and providing satisfactory solutions. (Strategy WT-1)
- Building partnerships with educational institutions or industry associations to enhance accessibility to information about LSPro Balai Sertifikasi for potential customers. (Strategy ST-2)

Recommendation

Additionally, several suggestions for further research are as follows: It is necessary to conduct further research on the implementation of the results of the customer satisfaction strategy design for SNI product certification services that has been carried out in this study. It is necessary to conduct further research in the fields of voluntary SNI product certification services, halal certification services, and similar services to enrich the understanding of strategy design for achieving customer satisfaction in the service industry.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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