

The Relationship Between Regulatory Compliance, Service Procedures, Digital Services, and Consumer Satisfaction

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*To meet the publics' needs for the safety and quality of processed food, the Directorate of Processed Food Standardization provides public services for assessing safety, quality, nutrition, benefits, and labeling; the safety of genetically modified organism (GMO) products; and approving clinical tests. The public service quality achievement can be measured using a Public Satisfaction Survey among stakeholders, in the form of an index that explains the expectations and performance of public services received by customers. This research was conducted to determine the variables related to customer satisfaction regarding assessment service completion time, assessed through the ease of fulfilling requirements, the ease of service procedures, and the availability of supporting applications. The research method used is quantitative, with a cross-sectional design. The data used comes from the Public Satisfaction Survey (SKM) of business actors who received assessment services in 2023 and 2024. The research was based on the perceptions of 41 respondents, comprising 9 males (22%) and 32 females (78%). The research results show that ease of service, procedural requirements, and application availability are related to customer satisfaction with the time to complete the assessment service (sig. < 0.05). To improve services, several steps can be considered, such as improving the stability of the system infrastructure, improving the existing requirements, procedures, and systems. Conduct outreach, technical guidance, and coaching clinics for applicants. Furthermore, it is necessary to improve the technical competence of evaluators in order to reformulate and simplify the documents needed.*

Dalam rangka memenuhi kebutuhan masyarakat atas pemenuhan keamanan dan mutu dari pangan olahan, maka Direktorat Standardisasi Pangan Olahan (SPO) memberikan pelayanan publik kepada pelaku usaha dalam hal pengkajian keamanan, mutu, gizi, manfaat dan label, keamanan pangan produk rekayasa genetik (PRG) serta persetujuan uji klinik. Pencapaian kualitas pelayanan publik yang prima dapat diukur/ dievaluasi salah satunya dengan menggunakan survei kepuasan masyarakat (SKM) terhadap pelaku usaha (stakeholder) berupa indeks yang menjelaskan harapan dan kinerja pelayanan publik yang dapat diterima oleh masyarakat (pelanggan). Penelitian ini dilakukan untuk menentukan variabel/ unsur yang berhubungan dengan kepuasan pelanggan dalam hal waktu penyelesaian pelayanan pengkajian dilihat dari kemudahan pemenuhan persyaratan, kemudahan prosedur pelayanan serta adanya aplikasi pendukung. Metode penelitian dilakukan secara kuantitatif dengan pendekatan penelitian *cross-sectional*. Data berasal dari Survei Kepuasan Masyarakat (SKM) pada tahun 2023 dan 2024 terhadap pelanggan (pelaku usaha) yang telah selesai menerima pelayanan pengkajian. Penelitian dilakukan berdasarkan persepsi 41 responden yang terdiri atas 9 responden laki-laki (22%) dan 32 responden perempuan (78%). Hasil survei secara acak menunjukkan bahwa kemudahan pemenuhan persyaratan,

kemudahan prosedur persyaratan dan ketersediaan sarana berupa aplikasi memiliki hubungan dengan kepuasan pelanggan terkait waktu penyelesaian pelayanan pengkajian ( $\text{sig.} < 0,05$ ). Untuk meningkatkan pelayanan maka dapat dipertimbangkan beberapa langkah peningkatan dalam hal stabilitas infrastruktur sistem, perbaikan terhadap persyaratan, prosedur maupun sistem yang dimiliki. mengadakan sosialisasi dan bimbingan teknis serta *coaching clinic* kepada pemohon pelayanan kajian. Selain itu perlu dilakukan pula peningkatan kompetensi teknis kepada petugas evaluator dalam rangka reformulasi penyederhanaan dokumen.

**Keywords:** *customer satisfaction, processed food, public service*  
**Kata Kunci:** layanan publik, pangan olahan, survei kepuasan masyarakat

## 1. Introduction

According to Regulation of the Republic of Indonesia Number 96 of 2012 concerning the Implementation of Law Number 25 of 2009 on Public Services, public service refers to activities undertaken to meet the publics' needs for goods, services, and administrative matters in accordance with prevailing laws and regulations. Within the field of public administration, the provision of public services is regarded as one of the governments' fundamental responsibilities to ensure the fulfillment of citizens' basic rights. Delivering high-quality public services is also considered a prerequisite for achieving the principles of good governance, including transparency, accountability, effectiveness, and public participation (Ishak, 2022).

Customer satisfaction is one of the key performance indicators that should receive continuous attention from public service providers. When a service organization successfully fulfills users' expectations, customers are more likely to be satisfied, ultimately contributing to improvements in the overall quality of public service delivery (Angraini, 2023). Balci et al. (2019) further identified customer satisfaction as an important indicator for evaluating both product quality and service quality. Customer satisfaction reflects users' emotional responses—whether positive or negative—resulting from their comparison between the services received and their initial expectations (Raza et al., 2020). Furthermore, customer satisfaction, together with service quality and relationship quality, plays an essential role in strengthening customer loyalty, which ultimately contributes to improved organizational performance (Zahro et al., 2024).

Conversely, customer dissatisfaction makes it increasingly difficult for organizations to establish and maintain long-term customer relationships. Therefore, organizations must develop effective strategies to achieve higher levels of customer satisfaction (Angraini, 2023). One of the most widely used instruments for evaluating the quality of public services in Indonesia is the Public Satisfaction Survey (Survei Kepuasan Masyarakat/SKM). Through this survey, stakeholders provide feedback on public service delivery via an index measuring the extent to which public services meet customer expectations. The survey results serve as an evidence-based reference for improving service quality (Ministry of Administrative and Bureaucratic Reform, 2017).

The Directorate of Processed Food Standardization (SPO), one of the technical units within the Indonesian Food and Drug Authority (Indonesian FDA), is responsible for providing public services in processed food standardization. To support this mandate, Indonesian FDA and The Directorate of SPO have established public service standards as

**Commented [Rev1]:** Dimiringkan. Demikian istilah di bahasa Indonesia lainnya

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the primary guidelines for delivering services that are efficient, accessible, affordable, measurable, and high-quality. To evaluate the effectiveness of these services, periodic Public Satisfaction Surveys are conducted to assess users' perceptions of the services provided. Based on the Regulation of the Minister of Administrative and Bureaucratic Reform Number 14 of 2017 concerning Guidelines for Conducting Public Satisfaction Surveys, nine service elements are evaluated, namely: (1) regulatory requirements; (2) systems, mechanisms, and procedures; (3) service completion time; (4) fees or charges; (5) service products and specifications; (6) service providers' competence; (7) service providers' behavior; (8) complaint handling, suggestions, and feedback; and (9) facilities and infrastructure.

Achieving customer satisfaction requires service providers not only to meet but also to exceed customer expectations. According to Kotler (2005), customer satisfaction is a feeling of pleasure or disappointment resulting from comparing the perceived performance of a product or service with prior expectations. Torry et al. (2016) demonstrated that customer satisfaction is significantly influenced by the actual service completion time experienced by customers. Service efficiency itself is affected by several factors, including customers' perceptions of the clarity and simplicity of service procedures, the competence and friendliness of service personnel, and the accessibility and comfort of service facilities (Listyorini & Kalbuadi, 2017). Similar findings were reported by Butarbutar et al. (2021), who found that employee service quality, service costs, promotional activities, ease of obtaining services, staff friendliness, and the service environment significantly influenced customer satisfaction.

Considering these findings, evaluating service quality—particularly customer satisfaction regarding the completion time of assessment services—becomes increasingly important. The completion time for assessment services provided by the Directorate of Processed Food Standardization ranges from a maximum of 30 to 85 working days, depending on the complexity of the submitted documents (Directorate of Processed Food Standardization, 2023). Since the complexity of document evaluation directly affects service completion time, customer satisfaction regarding this aspect represents a critical performance indicator.

Accordingly, this study aimed to identify the factors associated with customer satisfaction regarding the completion time of assessment services by examining three independent variables: the ease of regulatory requirements compliance, the clarity and simplicity of service procedures, and the availability of supporting digital services. Based on the theoretical framework, the following hypotheses were proposed:

- H1: The ease of regulatory compliance is significantly associated with customer satisfaction with assessment services provided by the Directorate of Processed Food Standardization.
- H2: Service procedures are significantly associated with customer satisfaction with assessment services provided by the Directorate of Processed Food Standardization.
- **H3:** The availability of digital services is significantly associated with customer satisfaction with assessment services provided by the Directorate of Processed Food Standardization.

It is expected that the findings of this study will provide evidence-based recommendations for improving customer satisfaction, particularly by identifying priority

areas for service improvement within the Directorate of Processed Food Standardization of the Indonesian FDA.

## 2. Methodology

This study employed quantitative research design with a cross-sectional approach. Quantitative research is a method used to investigate a specific population or sample through structured data collection instruments, with data analyzed using quantitative or statistical techniques. In a cross-sectional study, data are collected only once for each variable, although the overall data collection period may extend over several weeks, months, or even years (Bala, 2020). The study utilized secondary data obtained from the Directorate of SPO, Indonesian FDA. Specifically, the data were derived from the Public Satisfaction Survey (Survei Kepuasan Masyarakat—SKM) conducted in 2023 and 2024.

The survey employed a simple random sampling technique. Respondents were companies who had received comprehensive assessment services for processed food standardization. The minimum sample size was determined using the Krejcie and Morgan sampling formula (Ministry of Administrative and Bureaucratic Reform, 2017) based on the population of in 2023 and 2024, resulting in a target sample of 38 respondents. The distribution of the population and minimum sample size is presented in Table 1.

**Tabel 1.** Population and Minimum Sample Size.

| Year | Population of Service Recipients | Minimum Required Respondents |
|------|----------------------------------|------------------------------|
| 2023 | 51                               | 13                           |
| 2024 | 98                               | 25                           |

The research instrument consisted of an online questionnaire integrated into the Sapa APIP (Internal Government Supervisory Apparatus Monitoring System) through an embedded iframe. The questionnaire collected respondents' demographic characteristics, including gender, age, educational attainment, and occupation, as well as their perceptions of public service quality.

The dependent variable (Y) was customer satisfaction regarding the completion time of assessment services. The independent variables (X) included:

- X<sub>1</sub>: Ease of regulatory requirements compliance;
- X<sub>2</sub>: Clarity and simplicity of service procedures;
- X<sub>3</sub>: Availability of supporting services.

Business operators' satisfaction regarding the turnaround time for assessment services is contingent upon the following: a maximum of 85 business days for safety, quality, nutrition, benefits, and labeling assessments; a maximum of 56 calendar days for food safety assessments of genetically engineered products (GEPs); and a maximum of 20 days for clinical trial approval applications. These provisions are set forth in the Decision of the Director of Processed Food Standardization No. HK.02.02.51.511.01.23.01 of 2023. Ease of requirements compliance refers to a situation where the established requirements are easy to fulfill. Ease of service procedures refers to a situation in which the established service procedures are not confusing, easily accessible, not excessive, and easy to understand. The

availability of applications supporting the delivery of public services refers to the facilities and infrastructure that enable service providers to serve customers.

The indicators in this study were measured using a Likert scale. This scale consists of six categories, with each number representing a specific level. The Likert scale was weighted as follows: very difficult/inappropriate/incomplete (1), difficult/inappropriate/incomplete (2), slightly difficult/inappropriate/incomplete (3), moderate easy/appropriate/complete (4), easy/appropriate/complete (5), and very easy/appropriate/complete (6). An evaluation scale with an even number of response options is used to prevent respondents from selecting a middle value that indicates a neutral opinion. Furthermore, this enhances reliability and validity; the more scores there are on the scale, the higher the reliability and validity (Kusmaryono, I et al., 2022).

Data processing was conducted using the Statistical Package for the Social Sciences (SPSS; Statistics version 16.0) for descriptive analysis (examining respondent characteristics) and Pearsons' chi-square analysis. The use of Pearsons' chi-square test in evaluating public services aims to determine the strength of the relationship between categorical independent and dependent variables. The Chi-Square analysis was chosen for a 6-point rating scale because even-numbered scales lack a midpoint, leading many respondents to select the same number (resulting in many ties). The Chi-Square test is more accurate for such data conditions than Spearman's correlation, which is sensitive to ties (Hun & Alan, 2023; Agresi, 2024). In terms of customer satisfaction analysis, this method allows researchers to determine whether variations in satisfaction levels result from the significant influence of specific service factors or are merely statistical coincidences. This aligns with the principle that customer satisfaction does not exist in isolation but is driven by service attributes that are significantly interrelated in shaping the end users' perception (Agresti, 2024; Sugiyono, 2021; Susanto, 2022).

### 3. Results and Discussion

The minimum target number of respondents was 38, with 13 respondents in 2023 and 25 respondents in 2024. However, the data collected in 2023 included 13 respondents, and in 2024 included 28 respondents, bringing the total number of respondents in this study to 41. The number of respondents exceeded the target because simple random sampling was used, in which all respondents in the population (business owners who received assessment services in the processed food sector and had fully completed the service) had an equal chance of being selected in the SKM (Tajik & Golzar, 2022).

#### 3.1. Respondent Characteristics

Most of the respondents were female, totaling 32 respondents (78%). Most respondents were aged 26–35, totaling 17 people (41.5%); the most common educational level was a bachelors' degree (S1) at 63.4% (26 people); and the most common occupation was private-sector employee, totaling 31 people (75.6%). Complete data on respondent characteristics are shown in Table 2.

**Tabel 2.** Characteristics of respondents by age, gender, education, and occupation.

|           | Characteristics                                                                          | n* | Percentage (%) |
|-----------|------------------------------------------------------------------------------------------|----|----------------|
| Age       | 17–25 years old                                                                          | 3  | 7,3            |
|           | 26–35 years old                                                                          | 17 | 41,5           |
|           | 36–45 years old                                                                          | 10 | 24,4           |
|           | 46 - 55 years old                                                                        | 8  | 19,5           |
|           | >56 years old                                                                            | 3  | 7,3            |
| Gender    | Male                                                                                     | 9  | 22             |
|           | Female                                                                                   | 32 | 78             |
| Education | ≤ High School or Equivalent                                                              | 1  | 2,4            |
|           | D1/D2/D3                                                                                 | 2  | 4,9            |
|           | Bachelors' Degree                                                                        | 26 | 63,4           |
|           | Masters' Degree/Professional Degree/Doctorate                                            | 12 | 29,3           |
|           |                                                                                          |    |                |
| Jobs      | Students                                                                                 | 3  | 7,3            |
|           | Private-Sector Employees                                                                 | 31 | 75,6           |
|           | Researchers/Faculty Members                                                              | 3  | 7,3            |
|           | Civil Servants/Indonesian National Armed Forces (TNI)/Indonesian National Police (POLRI) | 4  | 9,8            |
|           |                                                                                          |    |                |
|           |                                                                                          |    |                |

\* Number of respondents

### 3.2. Analysis of the Relationship Between Easiness, Service Procedures, Application Availability, and Customer Satisfaction Regarding the Turnaround Time for Assessment Services.

The data obtained were analyzed using Pearsons' chi-square test. This analysis was used to determine the relationship between the ease of regulatory requirements compliance, the ease of service procedures, and the availability of applications supporting the delivery of public services at service units, and satisfaction with the completion time of assessment services conducted in accordance with regulations, with the following results:

#### 3.2.1 The Relationship Between the Ease of Regulatory Requirements Compliance and Customer Satisfaction Regarding the Turnaround Time for Assessment Services.

The data show that the majority fell into the “agree” category regarding the ease of regulatory requirements compliance (31.7%), and they also agreed that the service completion time was satisfactory. This phenomenon indicates that business operators recognize the importance of the technical requirements that must be met when submitting applications—such as safety data, quality specifications, or clinical trial protocols—and can effectively comply with these documentation requirements. The time required to complete the service is considered reasonable or satisfactory. This is in line with research conducted by Robin and Evyanto (2023) and Fransiska and Aquinia (2023), which states that customer satisfaction is influenced, among other things, by the ease with which customers can use a service system.

**Tabel 3.** Table Showing the Relationship Between Ease of Regulatory Requirement Compliance and Customer Satisfaction Regarding the Turnaround Time for Assessment Services\*.

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| Variable                                  | Customer Satisfaction Regarding the Turnaround Time<br>for Assessment Services |                |           |                | Total<br>(n** = 41) | p-<br>values |
|-------------------------------------------|--------------------------------------------------------------------------------|----------------|-----------|----------------|---------------------|--------------|
|                                           | Disagree                                                                       | Moderate agree | Agree     | Strongly agree |                     |              |
|                                           | n** (%)                                                                        | n** (%)        | n** (%)   | n** (%)        |                     |              |
| Ease of Regulatory Requirement Compliance |                                                                                |                |           |                |                     |              |
| Disagree                                  | 1 (2.4)                                                                        |                |           |                | 1                   | 0.001        |
| Slightly disagree                         |                                                                                |                | 1 (2.4)   |                | 1                   |              |
| Moderate agree                            |                                                                                | 2 (4.9)        | 3 (7.3)   | 2 (4.9)        | 7                   |              |
| Agree                                     |                                                                                | 5 (12.2)       | 13 (31.7) | 3 (7.3)        | 21                  |              |
| Strongly agree                            |                                                                                | 1 (2.4)        |           |                | 11                  |              |

\* The Likert scale presented in the table corresponds to the respondents' answers.

\*\* Number of respondents

The results of this study indicate a relationship between the ease of regulatory requirements compliance and the time required to complete the review. This is based on the Pearson chi-square test result, which was less than 0.05 (P-value = 0.001 < 0.05), as shown in Table 3, indicating that the null hypothesis (H0) is rejected and H1 is accepted. This value empirically demonstrates a relationship between respondents' perceptions of the ease of the assessment application requirements and their satisfaction with the services' completion time.

According to Susanto (2022), ease of use is defined as how easily users can understand and perform a task without needing many questions or prior instructions. Factors contributing to ease of use include the amount of effort required to understand the process or requirements. Since customers' perceptions of how convenient a service is influences their actions, the easier it is to meet their requirements, the more convenient and satisfied they will be. The more difficult the requirements are to meet, the longer it takes for a request to be approved, which ultimately reduces customer satisfaction with the turnaround time (Moynihan & Herd, 2021).

To obtain services related to the assessment of the safety, quality, nutrition, benefits, and labeling of processed foods; the food safety of genetically engineered products; and approval for conducting clinical trials of processed foods, business operators (who were involved at the time this survey was conducted) must meet the requirements set forth in the Decision of the Director of Processed Food Standardization No. HK.02.02.51.511.01.23. 01 of 2023. These requirements include, among others, chemical names, compositions, quality specifications for ingredients, comparisons with other countries' regulations, safety data, mechanisms of action, clinical trial protocols, and other requirements. After a business operator submits an application, the documents will undergo verification; if the requirements are incomplete and additional data is needed, the application will be returned to the business operator for correction and completion in accordance with the verification results. The timeline is calculated from the moment the verifier approves the documents. This will inevitably extend the time required for business operators to complete the review process. Failure to meet data requirements at the outset constitutes a form of system inefficiency that hinders customer satisfaction (Al-Kharaj, 2026).

Survey results show that some respondents found the ease of regulatory requirements compliance to be unsatisfactory. Coaching clinics should be conducted for applicants seeking assessment services to help them meet the documentation requirements and learn

how to conduct self-evaluations, thereby helping them understand the importance of the required documents in the assessment process. In addition to improving applicants' competence, it is necessary to enhance evaluators' competence to reformulate and simplify the documents required for assessments, including, among other things, improving their technical competence.

3.2.2 The Relationship Between Service Procedures and Customer Satisfaction Regarding the Time Taken to Complete The Assessment Service

The data distribution shows that respondents who rated the service procedures positively (“Agree” and “Strongly Agree”) accounted for the majority of those reporting high satisfaction with turnaround time (30 out of 41 respondents). Clear procedures make it easier for applicants to prepare the required documents with greater completeness. As a result, the “document completeness check” process in the early stages can be carried out with precision, minimizing the need for additional data or for returning files (rework/bottlenecks). This time reduction objectively shortens the overall service lead time, which directly contributes to high satisfaction with turnaround time (Setiawan et al., 2024). This is consistent with the research by Siswanto et al. (2021), which reports on the relationship between service procedures and customer satisfaction. The more systematic and easier to understand an application procedure is, the higher the probability of customer satisfaction with the agencies’ response speed.

**Tabel 4.** Table Showing the Relationship Between Service Procedures and Customer atisfaction Regarding the Time Taken to Complete the Assessment Service\*

| Variable          | Customer Satisfaction Regarding the Turnaround Time<br>for Assessment Services |                           |                  |                           | Total<br>(n** = 41) | p-<br>values |
|-------------------|--------------------------------------------------------------------------------|---------------------------|------------------|---------------------------|---------------------|--------------|
|                   | Disagree<br>n** (%)                                                            | Moderate agree<br>n** (%) | Agree<br>n** (%) | Strongly agree<br>n** (%) |                     |              |
| Service Procedure |                                                                                |                           |                  |                           |                     |              |
| Disagree          | 1 (2.4)                                                                        |                           |                  |                           | 1                   | 0.001        |
| Slightly disagree |                                                                                | 2 (4.9)                   | 2 (4.9)          | 2 (4.9)                   | 6                   |              |
| Moderate agree    |                                                                                | 5 (12.2)                  | 14 (34.1)        | 2 (4.9)                   | 21                  |              |
| Agree             |                                                                                | 1 (2.4)                   | 1 (2.4)          | 11 (26.8)                 | 13                  |              |
| Strongly agree    | 1 (2.4)                                                                        |                           |                  |                           | 1                   |              |

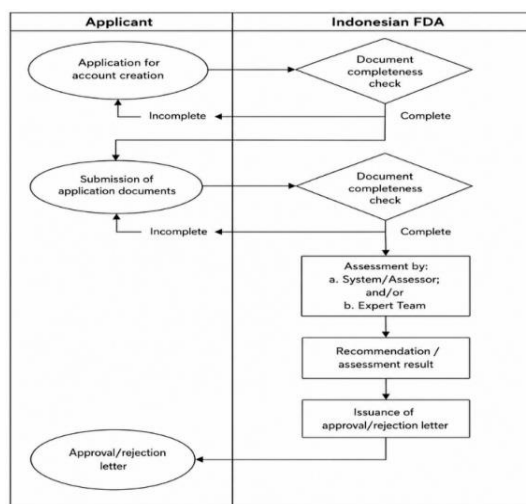
\* The Likert scale presented in the table corresponds to the respondents’ answers  
\*\* Number of respondents

Survey data on perceptions of service procedures were then analyzed using Pearsons’ chi-square test along with satisfaction data regarding the time taken to complete the assessment service. The results of these calculations yielded a P-value < 0.05 (P-value = 0.001), as shown in Table 4. This indicates that the null hypothesis (H0) is rejected and H2 is accepted. This result indicates a relationship between respondents’ perceptions of their understanding of the assessment application procedures and their satisfaction with the services’ completion time.

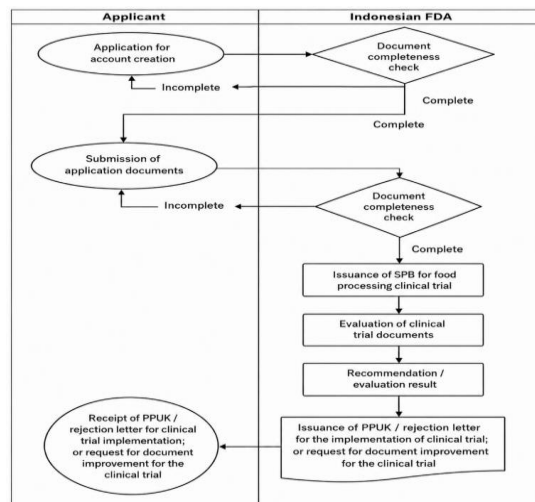
The procedures related to the assessment service are set forth in the Decision of the Director of Processed Food Standardization No. HK.02.02.51.511.01.23.01 of 2023.

Business operators can learn about the procedures required to ensure a smooth assessment application process by referring to this Directors' Decision. The Directors' Decision has been published on [standarpangan.pom.go.id](http://standarpangan.pom.go.id), the Indonesian FDA subsite related to the Directorate of SPO. The publication of this service workflow is crucial as a tool for transparency for business operators. When applicants understand the complexity and stages involved (from pre-assessment and document evaluation to permit issuance), their expectations regarding completion times will become more realistic. This understanding reduces uncertainty avoidance. Business operators who understand the service procedures tend not to view waiting times as delays, but rather as a normal part of the process (Haryono & Wibowo, 2023).

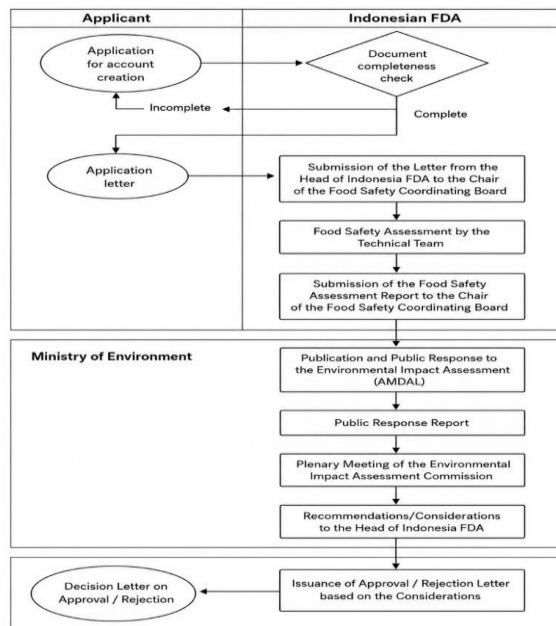
In general, the assessment service procedure consists of submitting application documents, verifying that the documents are complete, and conducting the assessment. The assessment procedure is outlined in the flowcharts shown in Figures 1-3.



**Figure 1.** Procedural flowchart for the assessment of the safety, quality, nutrition, benefits, and labeling of processed foods  
(Source: Directorate of Processed Food Standardization, 2023)



**Figure 2.** Procedural Flow for Approval of Clinical Trials of Processed Foods  
(Source: Directorate of Processed Food Standardization, 2023).



**Figure 3.** Procedural Flowchart for Food Safety Assessment of Genetically Engineered Products  
(Source: Directorate of Processed Food Standardization, 2023).

Survey results indicate that some respondents found the service procedures unsatisfactory. It is necessary to provide outreach and technical guidance to business operators so that service users can better understand the assessment process from the very beginning of the application. These efforts are expected to minimize document discrepancies, expedite the verification process, and improve customer satisfaction with the time it takes to complete the service.

Improving the communication skills of public officials also plays a crucial role in enhancing bureaucratic efficiency. When public communication skills are optimized, transparency regarding administrative processes increases, which significantly improves service recipients' understanding of service procedures and minimizes errors in document submission (Ramdhani et al., 2026; Yun et al., 2024). Furthermore, in the era of digital transformation and generative AI, the integration of generative AI and artificial intelligence into public administration has significantly improved government governance (Yun et al., 2024). Access to procedural explanations via generative AI can also enhance convenience for service users, particularly in understanding the review process.

### 3.2.3 The Relationship Between Application Availability and Customer Satisfaction Regarding the Turnaround Time for Assessment Services

**Tabel 5.** Table Showing the Relationship Between Application Availability and Customer Satisfaction Regarding the Turnaround Time for Assessment Services\*

| Variable         | Customer Satisfaction Regarding the Turnaround Time<br>for Assessment Services |                           |                  |                           | Total<br>(n** = 41) | p-<br>values |
|------------------|--------------------------------------------------------------------------------|---------------------------|------------------|---------------------------|---------------------|--------------|
|                  | Disagree<br>n** (%)                                                            | Moderate agree<br>n** (%) | Agree<br>n** (%) | Strongly agree<br>n** (%) |                     |              |
| App availability |                                                                                |                           |                  |                           |                     |              |
| Moderate agree   | 1 (2.4)                                                                        |                           | 3 (7.3)          | 2 (4.9)                   | 6                   | 0.012        |
| Agree            |                                                                                | 7 (17.1)                  | 12 (29.3)        | 5 (12.2)                  | 24                  |              |
| Strongly agree   |                                                                                | 1 (2.4)                   | 2 (4.9)          | 8 (19.5)                  | 11                  |              |

\* The Likert scale presented in the table corresponds to the respondents' answers.

\*\* Number of respondents

The results of this study indicate a relationship between the availability of service support applications and the time required to complete an assessment. This is based on the Pearson Chi-Square test result, which was less than 0.05 (P-value = 0.012 < 0.05), indicating that the null hypothesis (H0) is rejected and H3 is accepted. Based on the data in Table 5, the majority of respondents answered "Agree" and "Strongly Agree." System availability means not only that the site is accessible (not down) but also that the systems' technical functionality is free of bugs or errors when uploading documents.

These results indicate a relationship between respondents' perceptions of the availability of the assessment request app and their satisfaction with the services' turnaround time. This is consistent with previous research showing that users of the JMO (Jamsostek Mobile) app are satisfied with the app and its stable system, which allows them to successfully complete the necessary services (Maulani Wulangsari & Ahmad Wardani, 2023). Similar results were

found in other studies, in which users of the Mister Aladin app reported that the app made it easier to manage services (Kurniawati et al., 2018).

One aspect of e-service quality can be measured through system availability. System availability is a dimension of e-service quality that encompasses the technical functionality of the relevant website, which operates in accordance with requirements and meets service users' needs (Maulani Wulangsari & Ahmad Wardani, 2023). The Directorate of SPO ([standarpangan.pom.go.id](http://standarpangan.pom.go.id)) operates a website that serves as a sub-site of the Indonesian FDA website (Figure 4). To submit an application for review, business operators do not need to visit a physical service counter but can submit it online through this website. System availability shifts the service paradigm from a physical counter-based system to a paperless service without geographical boundaries. The same applies when business operators wish to check the status of their review applications. This submission website is accessible Monday through Friday from 8:00 AM to 4:00 PM. In e-government literature, eliminating the requirement for physical presence reduces travel time and waiting times in reception areas. Although the system is limited to operating hours (8:00 AM–4:00 PM), business owners feel the process moves much faster because the energy and time spent submitting documents have decreased drastically. This technical efficiency directly improves satisfaction scores regarding the time factor (Putra & Susanto, 2022).

To improve services that affect public satisfaction, particularly regarding the system, it is necessary to enhance the stability of the systems' infrastructure. If the system frequently experiences downtime, the assessment process will be delayed, which will automatically undermine satisfaction with response times. Therefore, this correlation demonstrates that the stability of the technological infrastructure is an absolute prerequisite for service efficiency in terms of time (Wijaya & Hartono, 2025).



Figure 4. Website for submitting review requests  
([standarpangan.pom.go.id](http://standarpangan.pom.go.id))

#### 4. Conclusion

To improve the quality of customer service, particularly customer satisfaction with the turnaround time for review services, an analysis was conducted of data from the SKM surveys of business operators who used the Directorate of SPO services in 2023. Based on the data analysis, it can be concluded that the ease of regulatory requirements compliance,

service procedures, and the availability of applications are significantly related to customer satisfaction with assessment services at the Directorate of SPO, Indonesian FDA. This is evidenced by the results of the Pearson chi-square test, which yielded a p-value < 0.05. Thus, the tested hypothesis is accepted. This indicates that the requirements, procedures, and applications prepared by the Directorate of SPO significantly contribute to user satisfaction. However, since some respondents rated the service time as unsatisfactory, the Directorate of SPO is recommended to prioritize improvements to its requirements, procedures, and systems.

It is recommended to plan training to build service staff capacity in public service communication, simplify information on requirements, and optimize the use of service assessment applications—including AI—to improve service effectiveness and expedite the assessment process, thereby increasing customer satisfaction.

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