

A Cascading Evaluation of Digital Population Identity in Palembang: Insights from ILPE and IPA

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ABSTRACT Since 2022, the Indonesian government has implemented the Digital Population Identity (IKD) application, introduced by the Palembang City Population and Civil Registration Office (Disdukcapil). However, user satisfaction with IKD remains low. This study evaluates IKD user satisfaction using a cascading method combining the Electronic Public Service Index (ILPE) and Importance Performance Analysis (IPA). The ILPE calculation yields a total score of 2.682. The Information Availability (I) dimension scores highest at 0.570, reflecting strong user satisfaction with data accuracy and relevance. In contrast, the Interaction (SI) dimension scores the lowest at 0.325, highlighting the need for better communication and interaction. The IPA analysis categorizes dimensions into quadrants: Quadrant 1 (Keep Up the Good Work) includes T1 (Password Security), T4 (Reputation Recognition), T5 (Clarity of Authentication Criteria), I1 (Data Accuracy), I2 (Timely Updates), R2 (Access Availability), and R3 (Response Speed), showing excellent performance. Quadrant 2 (Concentrate Here) includes E4 (Accuracy of Data Entry Instructions) and U3 (Intuitive Navigation), requiring significant improvement. Quadrant 3 (Low Priority) includes E1 (Intuitive Navigation), E3 (Personalized Experience), T2 (Authentication Clarity), U1 (Intuitive Interface), U2 (Instruction Clarity), SI1 (Social Interaction), and SI2 (Communication Ease), with lower improvement priorities. Quadrant 4 (Possibly Overrated) contains R1 (Form Download Speed), which may be overemphasized. These findings aim to guide policy refinement, enhance public service efficiency, and improve user satisfaction.

KEYWORDS Cascading Evaluation, Digital Population Administration, Electronic Public Service Index (ILPE), Importance Performance Analysis (IPA)

I. INTRODUCTION

In the era of globalization, information technology has become a vital element that is inseparable from everyday life. The rapid development of this technology is driven by the increasing accessibility of the internet, enabling various institutions, including government agencies, to utilize it to improve the quality of public services [1][2]. In Indonesia, the government has widely adopted information technology in various sectors, including population administration, to meet public demands for fast, efficient, and transparent services [3].

The Department of Population and Civil Registration (Disdukcapil) of Palembang City is one of the government agencies actively utilizing information technology in carrying out its duties [4]. This agency is responsible for managing population administration and civil registration in Palembang City, including formulating policies, providing

services, and managing population data. To enhance the efficiency and accessibility of its services, they continue to innovate based on technology [5]–[7].

Disdukcapil Palembang City has introduced the Digital Population Identity (IKD) application, an innovation that enables citizens to access and manage population data digitally. IKD, as the digital version of the electronic ID card (KTP-el), is designed to simplify various public service transactions by improving speed, convenience, and the security of population data authentication [8][9]. Since its introduction in 2022, IKD has been gradually implemented, starting with Disdukcapil employees and civil servants, and later expanded to the general public, including students. However, the implementation of IKD is still in its early stages, and the level of adoption and user satisfaction in Palembang City remains low, with only 2.87% of total registrations having been completed [10]. Although IKD has been introduced and used by some of the population, there

has not yet been a study specifically measuring user satisfaction with this application using the Electronic Public Service Index (ILPE) and assessing the strengths and weaknesses of each indicator [11]–[14].

To measure the Electronic Public Service Index (ILPE) and identify the strengths and weaknesses of each indicator, this study applies the Cascading Method [15]. This method combines two measurement techniques, namely ILPE and Importance Performance Analysis (IPA). ILPE is first used to assess the quality of technology-based services, providing a comprehensive view of the performance of digital public services such as the Digital Population Identity (IKD) application [16][17]. The results from ILPE then serve as the basis for further analysis using IPA, which aims to identify the gaps between user expectations and actual performance.

The results of this study are expected to assist the government in formulating more targeted policies, making services more efficient, accessible, and aligned with public needs. For researchers, this study is expected to contribute academically to the development of methodologies for evaluating the quality of digital public services and to open opportunities for further research on technology adoption in the public service sector.

II. LITERATURE REVIEW

A. ELECTRONIC PUBLIC SERVICE INDEX (ILPE)

ILPE is an evaluation system used to measure the effectiveness, quality, and efficiency of digital services provided by the government. This system collects data from various aspects of services to assess how well these services meet the needs of the public. By using this index, the government can identify areas that need improvement or enhancement.

ILPE refers to the Decree of the Minister of State Apparatus Utilization and Bureaucratic Reform of the Republic of Indonesia No. 595 of 2020 concerning the Guidelines for Evaluating Electronic Public Services [18]. The objectives of this guideline are to:

1. Provide a framework for evaluating electronic public services to promote and realize an open, participatory, innovative, and accountable government.
2. Enhance collaboration among government agencies in performing governmental duties to achieve common goals, improve the quality and reach of public services to the wider community, and reduce the incidence of abuse of authority and forms of collusion, corruption, and nepotism through the implementation of an electronic monitoring and public complaint system.

The evaluation of electronic public services is conducted using a quantitative method by applying the concept of maturity and a Likert scale to measure the opinions or perceptions of service users. The ILPE evaluation indicators consist of seven assessment dimensions [18]. Table 1 presents the dimensions and indicators of ILPE evaluation.

TABLE I
DIMENSIONS AND EVALUATION INDICATORS OF ILPE

Dimension	Indicator
Efficiency (E)	E1 - Intuitive Navigation
	E2 - Attractive Visual Design
	E3 - Personalization of User Experience
	E4 - Accuracy of Data Entry Instructions
Trust (T)	T1 - Password Security
	T2 - Authentication Criteria Clarity
	T3 - Reputation Acknowledgment
Reliability (R)	R1 - Form Download Speed
	R2 - Access Availability at All Times
	R3 - Website Response Speed
	R4 - Browser Compatibility
Service (CS)	CS1 - E-Service Staff Problem-Solving Ability
	CS2 - E-Service Staff Response Speed
	CS3 - E-Service Staff Trust-Building Ability
Ease of Use (U)	U1 - Intuitive User Interface
	U2 - Instruction Clarity
	U3 - Intuitive Navigation
Information Availability (I)	I1 - Data Accuracy
	I2 - Timely Information Updates
	I3 - User Needs Relevance
Interaction (SI)	SI1 - Social Interaction
	SI2 - Communication Ease
	SI3 - Post-Service Interaction

Dimension Weights

Each dimension in the instrument has a different weight adjusted according to ILPE [19]. These dimensions assess the success and quality of the system based on its ability to provide fast and seamless service, with a focus on an intuitive user interface. Information availability includes data accuracy, timely updates, and the relevance of the presented information. Table 2 shows the weights for each dimension.

TABLE II
WEIGHT OF DIMENSIONS AND EVALUATION INDICATORS FROM ILPE

Dimension	Dimensional weight percentage
Efficiency (E)	15%
Trust (T)	12%
Reliability (R)	16%
Service (CS)	14%
Ease of Use (U)	15%
Information Availability (I)	15%
Interaction (SI)	13%

Dimension Score

Each dimension has several indicators with value ranging from 1 to 4. The dimension score is obtained by averaging the indicator score of the dimension and multiplying it by the dimension weight [20]. Equation (1) shows the formula for calculating the dimension score.

$$D_i = \sum_{i=1}^m \left(\frac{nd_i}{d_i} \right) wd_i \quad (1)$$

Where:

D_i = score of Dimension i

nd_i = Score of Indicator of Dimension i

d_i = Indicator of Dimension i
 wd_i = Weight of Dimension I
 m = Number of Indicators of Dimension i

The Electronic Public Service Index Score

The ILPE score is a measure used to assess the overall quality of public services based on information technology. This score indicates how well the services provided by a digital application or platform, such as the Digital Population Identity (IKD), meet the expectations and needs of users. The ILPE score helps identify areas of service that need improvement or maintenance, thus providing a comprehensive overview of the digital service's performance to service providers. The ILPE score is obtained by summing the score of all dimensions as shown in equation (2).

$$e - \text{Service Index} = \sum D_i \quad (2)$$

To facilitate stakeholders in identifying areas that require improvement or further development, a decision table displaying the range of e-service index Score is used as a reference. This range serves as a benchmark for determining the outcome of the e-service index calculation, which is presented in Table 3.

TABLE III
ASSESSMENT INDEX SCORE BASED ON PREDICATES

Index Score	Category
3,26 – 4	Very Good
2,51 – 3,25	Good
1,76 – 2,50	Fair
<1,76 – 0	Poor

Based on Table 3, it can be concluded that the Performance Evaluation predicate of an entity is determined by the quality of electronic public service delivery.

B. IMPORTANCE PERFORMANCE ANALYSIS (IPA)

IPA is an analytical method used to evaluate the performance of a service or product based on two main dimensions: importance and performance. This method helps organizations understand how consumers or users assess specific aspects of the service provided and to what extent those aspects meet their expectations. IPA allows organizations to identify areas needing improvement and to prioritize resources on aspects most important to users that have not yet achieved optimal performance. Conversely, IPA also helps identify areas where performance is already strong and should be maintained or even enhanced. The stages of the IPA method are as follows :

1) DETERMINE THE PERFORMANCE SCORE (x_i) AND THE IMPORTANCE SCORE (y_i)

The Performance Score (x_i) is a score that measures the actual performance of a service in terms of a specific attribute within a system being evaluated. This performance score is given by users or stakeholders, reflecting how the attribute or service performs in the context being assessed. The Importance Score (y_i) represents the level of expectation

users or stakeholders have for a specific attribute or service .In this research, the Performance score (x_i) and Importance score (y_i) use a Likert scale ranging from 1 to 4, with the assessment levels determined based on Decree No. 595 of 2020 [18].

2) CALCULATE THE PERFORMANCE ASSESSMENT SCORE (X_i)

The Performance Assessment Score is the overall result of respondents' evaluations for a particular attribute or service being assessed. Equation (3) is the formula used to calculate the Performance Assessment Score.

$$X_i = \sum_{i=1}^n x_i \quad (3)$$

X_i is the Performance Assessment Score; (x_i) is the performance score.

3) CALCULATING THE SIGNIFICANCE ASSESSMENT SCORE (Y_i)

The Significance Assessment Score represents the overall evaluation by respondents of an attribute or service being assessed. Equation (4) is the formula used to calculate the Significance Assessment Score.

$$Y_i = \sum_{i=1}^n y_i \quad (4)$$

Y_i is The Significance Assessment Score; y_i is the importance score

4) CALCULATING THE CONFORMITY SCORE (Z_i)

The Conformity Score provides an indication of how well the performance of an attribute or service aligns with its level of importance. If ($X_i > Y_i$), the service performance is considered adequate or even exceeds the level of importance, indicating success in meeting or surpassing the established standards. Equation (5) represents the formula for calculating the Conformity Score.

$$Z_i = \frac{X_i}{Y_i} \cdot 100\% \quad (5)$$

Z_i is the Conformity Score.

5) CALCULATING THE MEAN CONFORMITY SCORE (\bar{Z})

The Mean Conformity Score provides an overview of how well the performance of attributes or services overall matches their level of importance. Equation (6) represents the formula for calculating the Mean Conformity Score.

$$\bar{Z} = \sum_{i=1}^n \frac{y_i}{Y_i} \cdot 100\% \quad (6)$$

\bar{Z} is the Mean Conformity Score.

The average Conformity Score can be used as a primary indicator to evaluate the overall performance of the IKD application in meeting the established expectations or importance.

If $\bar{Z} \geq 100$, it indicates that the service performance exceeds the given expectations. Conversely, if $\bar{Z} < 100$, it means that the service performance does not fully meet the established expectations or importance. Further analysis, including calculating the GAP score for each attribute or service, can help identify specific areas that require improvement or enhancement.

6) CALCULATING THE GAP SCORE (G_i)

The GAP score identifies the difference between the desired condition and the actual situation. The GAP score is the difference between the service performance score and the importance score. If the GAP score (G_i) is positive, it indicates that the service performance exceeds the desired expectations or importance. Conversely, if the GAP score (G_i) is negative, it signifies that the service performance falls short of the expectations or importance. Equation (7) provides the formula for calculating the GAP Score.

$$G_i = x_i - y_i \quad (7)$$

G_i is GAP Score

7) IMPORTANCE PERFORMANCE ANALYSIS (IPA)

Importance Performance Analysis (IPA) consists of several quadrants that help categorize service or product attributes based on their level of importance and performance. This method provides a visual framework to prioritize areas for improvement, maintain strong-performing attributes, and identify aspects that may be overemphasized or less critical. Each quadrant highlights specific action points, aiding organizations in optimizing resources to enhance overall user satisfaction and efficiency. These quadrants include:

1. **Quadrant 1: Keep Up the Good Work**
Factors in this quadrant are very important to customers and currently perform well. This means the company or organization is doing the right things in this area and should continue to maintain high standards to keep customer satisfaction.
2. **Quadrant 2: Concentrate Here**
Factors in this quadrant are very important to customers but are currently underperforming. This area needs special attention and immediate improvement. The primary focus should be on enhancing performance in this area to meet customer expectations and increase satisfaction.
3. **Quadrant 3: Low Priority**
Factors in this quadrant have low performance and are considered less important to customers. Although performance is inadequate, improvements in this area are not considered urgent. Attention can be given to this factor if resources are available, but it is not a top priority.

4. **Quadrant 4: Possible Overkill**
Factors in this quadrant perform well and are considered less important by customers. This means that, although performance in this area is good, the efforts being made may exceed customer needs. This suggests that it might be necessary to evaluate whether the resources invested in this area could be redirected or optimized for more critical areas.
Figure 1 illustrates the quadrants of Importance Performance Analysis used to evaluate service attributes based on the level of importance and performance perceived by users.

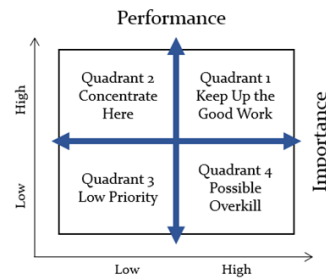


Figure 1. Quadrant Division for Importance Performance Analysis

III. RESEARCH METHODOLOGY

The stages of research are systematic and structured steps in conducting a study. Figure 2 illustrates the research stages depicted in a diagram.

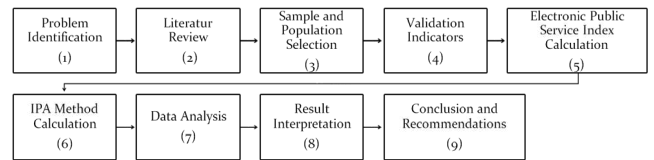


Figure 2. Research Methodology

A. SAMPLE AND POPULATION SELECTION

The population in this study consists of all ASN (State Civil Apparatus) or members of the public who used the IKD application in 2023. The sampling method used is non-random sampling. Based on the Slovin formula, the researcher determined the sample size to be $n = 100$. In the instrument validation stage, the sample size used is $n = 50$, while the sample size for calculating the Electronic Public Service Index is also $n = 50$. The questionnaire used is in the form of Paired Samples, with two sets of paired measurements to compare Performance and Expectations.

1) INSTRUMENT DEVELOPMENT

The instrument was developed based on the dimensions and indicators listed in Table 1. This process involves designing relevant question items or measurements according to those dimensions and indicators, and using a Likert scale to indicate the level of importance of each instrument.

2) INSTRUMENT VALIDATION

Instrument validation testing used Bivariate Correlation with Pearson Correlation Coefficient, with n = 30 data points. To determine the critical value (Rtabel), the degrees of freedom $df = n - 2 = 28$ and a significance level of 5% is 0.361. The Rtabel value is then compared with the Pearson Correlation Coefficient (r). The comparison results show that 17 indicators are valid with $r > 0.361$, and 3 indicators are invalid with $r < 0.361$. The invalid indicators are not used in the subsequent process. Table 4 displays the results of the instrument validation analysis using Bivariate Correlation with Pearson Correlation Coefficient.

TABLE IV
RESULTS OF INSTRUMENT VALIDATION ANALYSIS USING BIVARIATE CORRELATION WITH PEARSON CORRELATION COEFFICIENT

Dimension	Indicator code	Result	Description
Efficiency	E1	0,863	Valid
	E2	0,021	Invalid
	E3	0,806	Valid
	E4	0,488	Valid
Trust	T1	0,437	Valid
	T2	0,617	Valid
	T3	0,113	Invalid
	T4	0,790	Valid
	T5	0,696	Valid
Reliability	R1	0,717	Valid
	R2	0,646	Valid
	R3	0,629	Valid
	R4	0,273	Invalid
Ease of Use	U1	0,857	Valid
	U2	0,952	Valid
	U3	0,777	Valid
Availability of Information	I1	0,764	Valid
	I2	0,731	Valid
Interaction	SI1	0,857	Valid
	SI2	0,771	Valid

B. ELECTRONIC PUBLIC SERVICE INDEX CALCULATION

The calculation of the Electronic Public Service Index is carried out through several stages, explained as follows.

1) CALCULATING THE DIMENSION SCORES

Each dimension has several indicators, which are rated based on the level of user agreement with scores ranging from 1 to 4. These scores are compiled in a tabulation, and then the dimension score is calculated based on Equation (1). The results of the dimension score calculation are presented in Table 5.

TABLE V
DIMENSION SCORE CALCULATION

Dimension	Dimension Score (D_i)
Efficiency (E)	0,448
Trust (T)	0,366
Reliability (R)	0,534
Ease of Use (U)	0,439
Information Availability (I)	0,570
Interaction (SI)	0,325

2) CALCULATING THE E-SERVICE INDEX VALUE

The e-service index value is calculated based on the total sum of all dimension scores. The e-service index calculation uses equation 2.

$$\text{E-service index} = \sum (0.448 + 0.366 + 0.534 + 0.439 + 0.570 + 0.325) = 2.682$$

The e-service index value obtained is compared to the rating table to determine the category or quality level of the e-service. Based on Table 3, with an e-service index value of 2.682, it can be concluded that the performance of IKD is still in the good category. This result indicates that the IKD e-service has maintained good performance, according to the established criteria.

C. IPA METHOD CALCULATION

In the IPA method, the Cascading Method is applied, involving several stages during the calculation of the Electronic Public Service Index. These stages include determining the population and sample, developing instruments, and validating the instruments. Based on the results of instrument validation, data collection is conducted again to measure respondents' opinions.

1) CALCULATING THE PERFORMANCE SCORE, CALCULATING THE IMPORTANCE SCORE, CALCULATING THE CONFORMITY SCORE

The average scores for performance, importance, and conformity are calculated to evaluate the service based on data from 100 respondents, consisting of government employees (ASN) and the public. The Performance Score (X_i) is calculated using equation (3), the Importance Score (Y_i) is calculated using equation (4), and the Conformity Score (Z_i) is calculated using equation (5). Subsequently,

TABLE VI
CALCULATION RESULTS OF THE PERFORMANCE SCORE (\bar{X}_i), IMPORTANCE SCORE (Y_i), CONFORMITY SCORE (Z_i) DAN GAP SCORE (G_i)

D	(X_i)	(Y_i)	(Z_i)	(G_i)
E1	153	150	102,0	3
E3	131	150	87,3	-19
E4	164	150	109,3	14
T1	185	200	92,5	-15
T2	109	100	109,0	9
T4	158	182	86,8	-24
T5	158	180	87,8	-22
R1	150	200	75,0	-50
R2	178	182	97,8	-4
R3	173	176	98,3	-3
U1	151	150	100,7	1
U2	131	150	87,3	-19
U3	157	150	104,7	7
I1	186	177	105,1	9
I2	194	200	97,0	-6
SI1	121	123	98,4	-2
SI2	129	150	86,0	-21
Σ	2628	2770	$\bar{Z} = 94,87$	

the average Conformity Score (\bar{Z}) is calculated using equation (6), and the Gap Score (G_i) is calculated using equation (7). Table 6 presents the results of the calculations for the Performance Score (\bar{X}_i), Importance Score (Y_i), Conformity Score (Z_i), and Gap Score (G_i).

In the (Z_i) column, if the value of (Z_i) > 100, it indicates that the performance has exceeded expectations, and conversely, if (Z_i) < 100, the performance has not met expectations. The dimensions with good performance, meaning those that exceed expectations, include E1, E4, T2, U1, U3, and I1.

2) QUADRANT CHART

The quadrant chart in the Importance Performance Analysis (IPA) method is used as a visual tool that maps the relationship between the level of importance and performance of various service or product attributes being evaluated. This chart helps identify which areas need to be maintained, improved, or deprioritized, thus serving as an effective guide for decision-making to enhance services at the Civil Registry Office (Disdukcapil) of Palembang City. The quadrant chart is created based on the average respondent values for performance and importance. The chart is generated using SPSS software. Figure 3 shows the Quadrant Chart for evaluating the IKD application using IPA analysis.

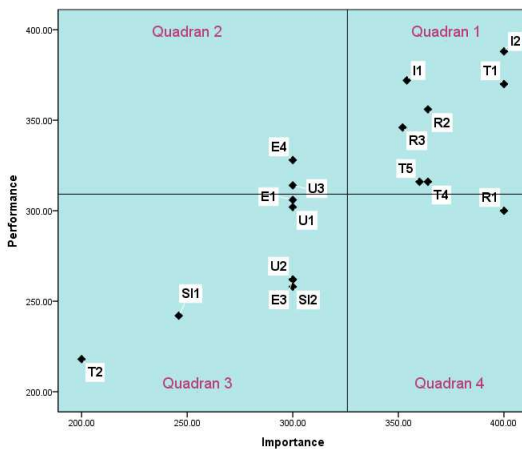


Figure 3. The Quadrant Chart for evaluating the IKD application using IPA analysis

IV. RESULT INTERPRETATION

The evaluation results of the IKD application using IPA analysis based on the quadrant graph conclude that:

- 1) In Quadrant 1: Keep Up the Good Work, the dimensions in this quadrant show good performance and high importance. These dimensions include Trust (T1 - Password Security and T4 - Reputation Acknowledgment), Information Availability (I1 - Data Accuracy and I2 - Timely Information Updates), and Reliability (R2 - Access Availability and R3 - Website Response Speed). This means that security features such as password protection and reputation acknowledgment,

accurate and up-to-date information availability, and website access and response speed are considered very important by users, and the IKD application has successfully met these expectations. Therefore, performance in this area should be maintained as it has provided good user satisfaction.

- 2) In Quadrant 2: Concentrate Here, there are two dimensions with high importance but low performance: Efficiency (E4 - Accuracy of Data Entry Instructions) and Ease of Use (U3 - Intuitive Navigation). Users consider accurate data entry instructions and ease of navigation to be very important, but the current performance in these areas is unsatisfactory. Therefore, improvements are needed to provide clearer instructions and facilitate easier navigation for users to meet the unmet expectations.
- 3) In Quadrant 3: Low Priority, there are several dimensions with low importance and performance: Efficiency (E1 - Intuitive Navigation and E3 - Personalization of User Experience), Trust (T2 - Authentication Criteria Clarity), Ease of Use (U1 - Intuitive User Interface and U2 - Instruction Clarity), and Interaction (SI1 - Social Interaction and SI2 - Communication Ease). Users do not pay much attention to or prioritize these dimensions in their experience with the application. Therefore, improving performance in these areas is not urgent and can be considered a lower priority.
- 4) In Quadrant 4: Possible Overkill, there is only one dimension: Reliability (R1 - Form Download Speed). Although performance in this area is rated very well, users do not consider form download speed to be very important. This indicates that resources allocated to improvements in this area could be redirected to other aspects that users prioritize more.

V. CONCLUSION

The results of the Electronic Public Service Index (ILPE) calculation and Importance Performance Analysis (IPA) reveal several key findings related to service performance and importance :

- 1) The calculation of the Electronic Public Service Index (ILPE) shows a total ILPE score of 2.682, indicating that most respondents feel that the service meets most of their expectations. The Information Availability (I) dimension received the highest score of 0.570, indicating that the accuracy and relevance of the information provided are very satisfactory to users. The Reliability (R) dimension also shows a good score of 0.534, suggesting that the service is quite reliable, although there is room for improvement. Meanwhile, the Interaction (SI) dimension has the lowest score of 0.325, indicating that communication and interaction with users need more attention to enhance the overall user experience.
- 2) The Importance Performance Analysis (IPA) results can be summarized as follows:
 1. Quadrant 1: Keep Up the Good Work includes indicators T1 (Password Security), T4 (Reputation

Acknowledgment), T5 (E-Service Staff Problem-Solving Ability), I1 (Data Accuracy), I2 (Timely Information Updates), R2 (Access Availability at All Times), and R3 (Website Response Speed). These indicators show very good performance and meet respondents' expectations, so they should be maintained.

2. Quadrant 2: Concentrate Here includes indicators E4 (Accuracy of Data Entry Instructions) and U3 (Intuitive Navigation), which, although important, require significant performance improvements to meet user expectations.
3. Quadrant 3: Low Priority consists of indicators E1 (Intuitive Navigation), E3 (Personalization of User Experience), T2 (Authentication Criteria Clarity), U1 (Intuitive User Interface), U2 (Instruction Clarity), S11 (Social Interaction), and S12 (Communication Ease). These indicators are important but can be prioritized lower for improvement.
4. Quadrant 4: Possible Overkill contains the indicator R1 (Form Download Speed), which suggests that the attention given to this dimension may be excessive compared to its level of importance. Recommended solutions include improving performance in Quadrant 2, ongoing monitoring for Quadrant 3, and reviewing resource allocation for Quadrant 4 to enhance overall service quality.

AUTHORS CONTRIBUTION

Farid Fadly: Formulating the research idea and design, Collecting field data, Analyzing data (ILPE and IPA);

Abdul Kholik: Preparing the background and literature review, Developing qualitative analysis, Providing critical feedback on the manuscript;

Muhammad Fadhil Alie: Drafting the introduction and conclusion sections, Providing input on local relevance, Improving content relevance;

Agustina Heryati: Proofreading and ensuring compliance with writing guidelines, Offering suggestions related to policy implications, Aligning different sections of the research

Terttiaavini: Developing methodology and theoretical framework, Supervising data processing, Refining analysis, Writing the initial draft of the article, Revising based on co-authors' feedback;

Darius Antoni: Statistical evaluation and interpretation of IPA data, Processing statistical data, Contributing to the discussion of the results;

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