THE EFFECT OF RADIO FREQUENCY SPECTRUM LICENSING SERVICE QUALITY ON USER SATISFACTION IN EAST JAVA: IPA ANALYSIS AND TOP TWO BOX

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ARTICLE INFO	ABSTRACT
	Hall Monitor SFR Class I Surabaya is a Technical Implementation Unit in charge of supervising and controlling the use of SFR. To determine customer satisfaction with SFR licensing services, research was conducted where the measurement of the satisfaction index was based on 9 indicators, namely Requirements, Service Procedures, Time to Complete, Ease of Payment of Tariffs, Products, Competence of Implementers, Behavior of Implementers, Handling Complaints, Infrastructure. The analysis used to measure satisfaction is the Top Two Boxes Analysis and Importance Performance Analysis methods. Based on the results of the analysis, it was concluded that the Service Satisfaction Index value was 90.84 with service quality A (very good). The results of the IPA 2 indicators must be considered and improved by Balmon Surabaya related to factors that affect customer satisfaction with SFR licensing services. These factors are Complaint Handling and Infrastructure.

Introduction

The Directorate General of Resources and Equipment of Post and Information Technology (Ditjen SDPPI) is an echelon I-level work unit under the Ministry of Communication and Information (Sitorus, 2016). Surabaya Class I Radio Frequency Spectrum Monitor Center is one of the UPT (Technical Implementation Unit) of the Directorate General of Resources and Equipment of Post and Information Technology (SDPPI), Ministry of Communication and Information Technology of the Republic of Indonesia. in the regions, which are in charge of supervising and controlling the use of radio frequency spectrum in the territory of the Republic of Indonesia as stated in the Law of the Republic of Indonesia (Lastri, 2022). Number: 36 of 1999 concerning telecommunications and Regulation of the Minister of Communication and Information Technology Number: 7 of 2021 on the use of radio frequency spectrum and Director General of SDPPI No. 7 of 2021 concerning procedures for coaching, supervising, and imposing sanctions on the use of radio frequency spectrum and telecommunication equipment and/or telecommunication equipment.

In detail, the operation of public services at the Surabaya Class I SFR Monitor Center, namely Radio Frequency Spectrum Licensing (ISR), public services provided to legal entities (companies), and government agencies for the use of frequency spectrum (Desta, Berhe, & Hintsa, 2018).

The results of the User Satisfaction Index research on the licensing services of Balai Monitor SFR Class I Surabaya for the last 5 years are as follows:
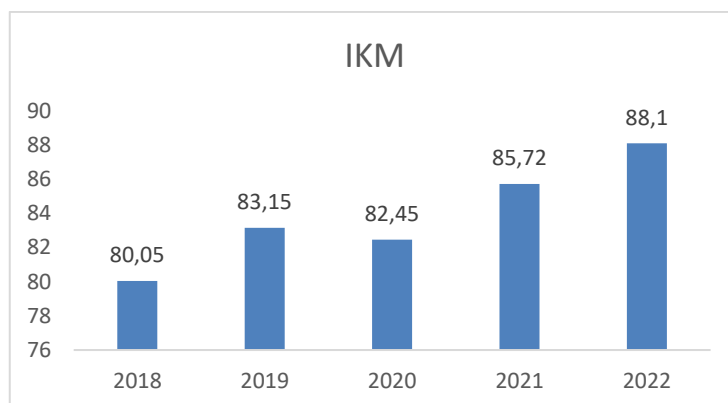

Figure 1 IKP Results from 2018 to 2022

From Table 1, it is known that the IKP value of Balai Monitor SFR Class I Surabaya is increasing. In 2020, the value of IKP decreased due to user satisfaction with services decreased due to the COVID-19 pandemic in early 2020. The new system (online) and officers who cannot consult face-to-face made a decline in 2020 because there were several services with new systems in the pandemic era.

In 2022, the IKP is still increasing with a very good predicate. However, if viewed in detail for each service variable, two services are still below good value, namely complaint handling and infrastructure. In the complaint handling variation, the media/means of submitting complaints and the time or speed of officers in responding to complaints are considered good less by the community and become less valuable in the User Satisfaction Index. In the variable facilities and infrastructure, Balai Monitor Surabaya does not yet have an online facility (website) to provide information to the public and also a less aesthetic service space. So people still have to come directly to the office to get information services.

(Rugenyi, 2016), assumes that quality is the overall nature of a product or service that affects its ability to satisfy stated or implied needs. According to (Prestiadi, Zulkarnain, & Sumarsono, 2019), quality management can be said to be all activities of the overall management function that determine quality policies, goals, and responsibilities, and implement them through quality management tools.

In its implementation, activities, and management functions must be supervised to maintain the desired level of excellence such as establishing quality policies, creating and planning quality, quality assurance and control, and quality improvement. The quality that is supervised is not only limited to the quality of the products and services produced but the quality of the company as a whole includes the quality of employees who work to the quality of the company in the eyes of consumers (Imtiyaz, 2018).

Total Quality Management (TQM) is a philosophy that emphasizes three principles to achieve high levels of performance and process quality. These principles

relate to customer satisfaction, employee engagement, and continuous performance improvement.

Public Service

Public Service is an activity or series of activities to fulfill service needs by laws and regulations for every citizen and resident of goods, services, and/or administrative services provided by public service providers. Thus public service is the fulfillment of the wants and needs of the community by state organizers. Theoretically, the purpose of public service is basically to satisfy the community (Fung, 2015).

Service management

Service management is a concept used to manage and improve the quality of services provided by an organization. This theory emphasizes the importance of understanding customer needs and providing high-quality service effectively and efficiently.

Public service management is an effort to manage several aspects of management to design, prepare or present goods and services to the community and evaluate and assess these activities (Putri & Sahuri, 2017).

The benefits expected to be achieved from this research are as follows:

1. Analysis of the level of importance and perception that affects community satisfaction
2. The results of the analysis of the IKP to produce a strategic plan for improving public services Balmon SFR Class I Surabaya. Directorate General of SDPPI.

Research Methods

Types of Research

This research is quantitative research that analyzes the level of importance (expectations) and perceptions of influencing User Satisfaction in public services using the Top Two Boxes and Importance Performance Analysis (IPA).

Research Variables

To be able to measure the User Satisfaction Index (IKP) of service users on the quality of Balmon SFR Class I Surabaya services, it is necessary to compile a questionnaire on the satisfaction of the service user community guided by PermenPAN-RB No. 14 of 2017.

Data Types and Sources

The type of data in this study is primary data obtained directly from the SFR licensing service user survey.

Population and Research Sample

The population in this study is the owner of a Radio Station License (ISR) in the East Java region and the sample must be carefully selected to represent the population. The sample of this study uses the Slovin formula.

Data Collection Methods

Surveys can be carried out by two methods, namely face-to-face interviews with respondents and surveys conducted online.

1. Surveys with direct interviews with respondents
2. The implementation of the survey with direct interviews with respondents was carried out using questionnaires.
3. Online surveys

Online surveys are conducted electronically using a survey tool whose link is sent to respondents. The survey link is sent via email or other communication media such as Whatsapp.

Data Analysis Techniques

Questionnaires that have been prepared, before being used for field survey activities, need to be carried out in questionnaire trials (Test the questions) first. The questionnaire trial aims to determine the validity and level of reliability of the questionnaire (Askari, Peiravian, Tilahun, & Yousefi Baseri, 2021). The trial was carried out by conducting interviews with a small group of respondents numbering between 30 people using a questionnaire format that had been prepared. The reliability of the questionnaire was tested using Cronbach's Alpha test on SPSS Software.

Results and Discussion

Overview of the Object and Subject of Research

In the Results and Discussion Chapter, the results of the 2023 Surabaya Class I Monitor Center Public Service survey activities are displayed. The data used in the discussion were data obtained from a survey conducted independently by Balai Monitor Class I Surabaya. The object to be measured in this study is radio frequency spectrum licensing services and respondents from this survey are users/customers of radio frequency spectrum licensing services. Self-surveys have been conducted on radio frequency spectrum licensing services. The calculation of public service IKP (Licensing) Balai Monitor Class I Surabaya is carried out by calculating the aggregation of the data from the survey implementation. In general, the data that will be described in this discussion chapter are as follows:

a. Profile of Respondents to the 2023 Surabaya Class I Monitor Center Public Service Survey.
b. Public Service IKP Surabaya Class I Monitor Center in 2023.

Results of Importance Performance Analysis

IKP Radio Frequency Spectrum Licensing Service Surabaya Class I Monitor Center in 2023

Balai Monitor Class I Surabaya as a government agency provides public services, namely Radio Frequency Spectrum (SFR) in 4 types of services, namely Land Mobile Service services, Permanent Service services, Broadcast Service services, and Other Service services (radar and satellite). In providing public services to the community, the implementation of services must be carried out in a transparent and accountable manner. The public service is also one of the measurable assessments of government agencies through the assessment of the Community Satisfaction Index which shows the level of service quality. Balai Monitor Class I Surabaya has conducted periodic IKP surveys

every year which are also used as performance benchmarks and materials for improving public services to the community.
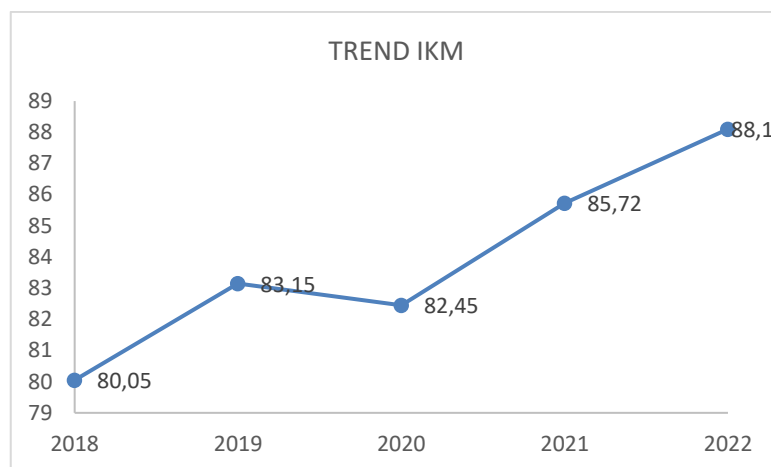

Figure 2 Development Trend of IKP Balai Monitor Class I Surabaya in the 2018-2022 period

The picture above shows the development trend of public service IKP at the Surabaya Class I SFR Monitor Center in the period 2018 to 2023. In general, the IKP Balai Monitor SFR Class I Surabaya is experiencing a positive trend, meaning that it tends to increase from 2018 to 2023. However, in 2020, the IKP value dropped to 82.45 (Good) because the licensing service system was also affected by the COVID-19 pandemic.

The IKP survey of Balai Monitor Class I Surabaya in 2023 has been carried out. In 2023, the survey will be carried out independently by the internal party in Surabaya. The IKP survey conducted independently was conducted by Balmon Surabaya for the IKP Radio Frequency Spectrum Licensing service. The calculation of the IKP of Balai Monitor SFR Class I Surabaya is carried out by calculating the IKP results from a service survey of SFR users. The measurement of the IKP value of Radio Frequency Spectrum Permit services is carried out on SFR Licensing services that provide public services in the categories of Fixed Service, Mobile Service, Broadcast Service, and Other Services (Radar and Satellite). The results of the assessment of the Public Service User Satisfaction Index of Balai Monitor Class I Surabaya are presented in the following table.

Table 1
User Satisfaction Index (IKP) of Balmon Surabaya Licensing Services

Indikator	IKP		Quality of Service	Unit Performance
	Skala 1-4	Skala 25-100		
Requirement	3.78	94.44	A	Excellent
Service Procedure	3.73	93.36	A	Excellent
Service turnaround time	3.76	93.98	A	Excellent
Ease of Payment of Tariffs/Fees	3.67	91.67	A	Excellent
Service Products	3.64	91.05	A	Excellent

Competence of Implementers	3.64	90.90	A	Excellent
Executor Behavior	3.77	94.29	A	Excellent
Handling Complaints, Suggestions, and Feedback	3.33	83.33	B	Good
Facilities and Infrastructure	3.38	84.57	B	Good
SFR Service IKP Value	3.63	90.84	A	Sangat Baik

Data Source: Balmon Surabaya Survey Results

The overall User Satisfaction Index (IKP) of Balai Monitor SFR Class I Surabaya in 2023 is 3.63 (scale 1-4) or 90.84 (scale 1-100). This value shows that the service performance organized by Balai Monitor SFR Class I Surabaya is categorized as "VERY GOOD" with service quality A. The value of IKP in public services of Balai Monitor Class I Surabaya, there are 7 indicators with IKP values above 3.5 which are included in the category "VERY GOOD". Meanwhile, 2 service indicators obtain IKP under the very good category, namely complaint handling, and infrastructure. Services that obtain the lowest IKP score, namely handling complaints, suggestions, and input with an IKP of 3.33 or 83.33. However, respondents' assessment of these indicators is still in the "Very Good" category with a service quality A predicate.

Based on the data displayed in the figure and table above, it can be seen that the service quality category will not change compared to 2022, which is getting "VERY GOOD" service quality. This shows that SDPPI services have been very satisfying for the community. However, quantitatively, the IKP value of Balai Monitor Class I Surabaya has increased by 2.4% when compared to 2023.

Top Three Boxes Analysis of Radio Frequency Spectrum Licensing

Top Three Boxes (TTB) analysis is an analysis to calculate the percentage (%) of respondents who have been "satisfied" with the quality of licensing services at Balai Monitor SFR Class I Surabaya (Getahun & Nkosi, 2017). TTB analysis provides an overview of the success of the quality of Licensing Services of Balai Monitor SFR Class I Surabaya. The picture of the success of the quality of Public Services of Balai Monitor SFR Class I Surabaya is in the form of the percentage (%) of service users who give a positive assessment of the quality of Balai Monitor SFR Class I Surabaya Licensing Services.

TTB Analysis on a measurement scale of 1–4, calculated based on the percentage (%) of respondents who chose answer choices 3 and 4 (respondents who expressed "Satisfied" and "Very Satisfied").

Gap Analysis of Licensing Services for Class I SFR Monitor Center Surabaya

The results of the 2023 Surabaya SFR Class I Monitor Hall Service Indicator Importance Index on Licensing services are presented in the table below. Importance Index The indicator is the importance of the IKP indicator assessed by service users. The Predictor Interest Index can also be interpreted as the expectations of service users for the performance of service providers in each indicator. The average Indicator

Importance Index for radio frequency spectrum Licensing services is 3.59 (scale 1-4). This value indicates that the service performance expected by service users is quite high.

The indicator that obtained the highest importance in Radio Frequency Spectrum Licensing Services was "Requirements" with a value of 3.86, while the indicator that obtained the lowest importance in SFR Services was "Service Turnaround Time" with a value of 3.43.

Table 2
Importance Index of Licensing Service Indicators in 2023

NO	INDICATOR	IMPORTANCE (SCALE 1-4)
1	Requirement	3.86
2	Service Procedure	3.64
3	Service Procedure	3.43
4	Ease of Payment of Tariffs/Fees	3.59
5	Service Products	3.47
6	Competence of Implementers	3.49
7	Executor Behavior	3.53
8	Handling Complaints, Suggestions, and Feedback	3.67
9	Facilities and Infrastructure	3.65
	Average	3.59

Gap Analysis is an analysis to measure the gap between performance and the expectations of each indicator of public satisfaction survey/service users. Gap Analysis is used to summarize survey indicators that have gap numbers that exceed the upper threshold of gaps. Indicators of service user satisfaction that exceed the upper threshold of the gap will be the focal point for improving service quality in the future. To obtain service user satisfaction indicators that are the top priority for improving service quality, Importance, and Performance Analysis (IPA) is used. The results of the gap analysis are presented in the Table below.

Table 3
Gap Analysis of Balmon Surabaya Licensing Service Unit

NO	INDIKATOR	VALUE		GAP
		INTERESTS	IKP	
1	Requirement	3.86	3.78	(0.09)
2	Service Procedure	3.64	3.73	0.09
3	Service turnaround time	3.43	3.76	0.33

4	Ease of Payment of Tariffs/Fees	3.59	3.67	0.08
5	Service Products	3.47	3.64	0.17
6	Competence of Implementers	3.49	3.64	0.14
7	Executor Behavior	3.53	3.77	0.24
8	Handling Complaints, Suggestions, and Feedback	3.67	3.33	(0.34)
9	Facilities and Infrastructure	3.65	3.38	(0.27)
	Average	3.59	3.63	0.19

In Gap Analysis for SFR Service Units, the provision to state that the indicator gap is wide or large is an indicator gap that is outside the upper threshold of gap tolerance, which is above -0.08. From the table above, it can be seen that there is a fairly wide gap between expectations and performance in indicators:

1. Requirement (-0.09)
2. Handling Complaints, Suggestions, and Feedback (-0.34)
3. Facilities and Infrastructure (-0.27)

This fact shows that in these three indicators, users of Balai Monitor SFR Class I Surabaya licensing services have very high expectations for the quality of requirements, complaint handling, suggestions, and inputs, and facilities and infrastructure provided by the SFR licensing service unit. But in reality, the performance received by service users is still far from the expectations of service users.

Importance Performance Analysis of Licensing Services of Surabaya Class I SFR Monitor Center

Quadrant analysis is used to map the relationship between expectations or importance and performance of each indicator of the user satisfaction survey of Balai Monitor SFR Class I Surabaya licensing services. There are 9 (nine indicators) in this survey, namely:

X1 : Requirements

X2: Service Procedure

X3: Service Turnaround Time

X4: Ease of PaymentRates/Fees

X5: Service Products

X6: Implementing Competencies

X7: Executor Behavior

X8: Handling Complaints, Suggestions, and Feedback

X9: Facilities and Infrastructure

The results of the quadrant analysis of the data obtained in the 2023 Surabaya Class I Monitor Center Service User Satisfaction Survey as a whole are presented in the figure below.
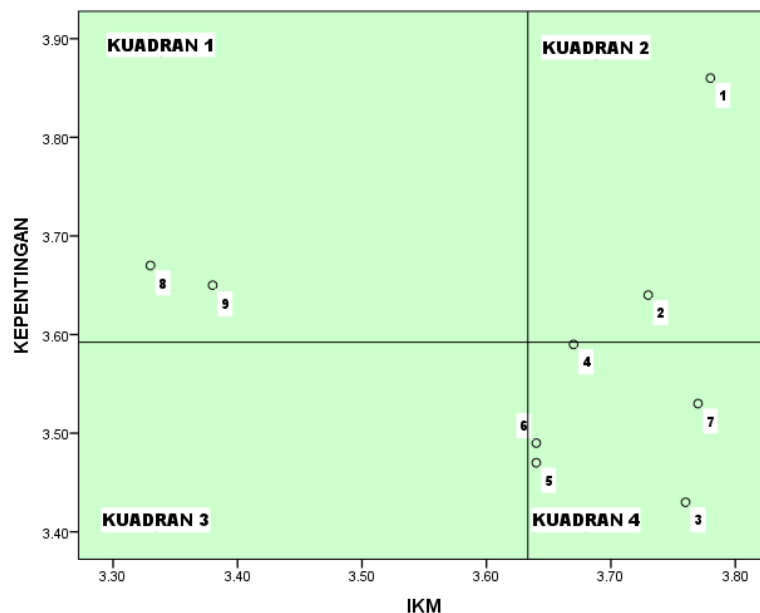

Figure 3

SFR Licensing Service User Satisfaction Indicator Mapping (Cartesian Diagram)

1. Quadrant I: Top priority for performance improvement.

This quadrant contains service user satisfaction indicators that are considered important by service users (high expectations), but the performance of these indicators has not been in line with service user expectations (low performance). The indicators included in quadrant I must be a top priority in efforts to improve performance (performance improvement) in the future. The indicators included in quadrant I are:

X8: Complaints, Suggestions, and Feedback.

X9: Facilities and Infrastructure

2. Quadrant II: Keep Achievements

This quadrant contains indicators of service user satisfaction that are considered important by service users (high expectations) and their performance can meet the expectations of service users (high performance). Service user satisfaction indicators included in this quadrant must be maintained. The indicators included in quadrant II are.

X1 : Requirements

X2: Service Procedure

X4: Competence of Implementers

3. **Quadrant III: Low Priority.**

This quadrant III contains indicators of service user satisfaction that are considered less important by service users (low expectations), and the performance of these indicators is also not special (low performance). No SFR licensing service indicator is included in quadrant III.

4. **Quadrant IV: Exceeding Expectations**

This quadrant IV contains indicators of service user satisfaction that are considered less important by service users (low expectations), but the performance of these indicators is quite high exceeding the expectations of service users. The indicators included in this quadrant IV are:

X3: Service Turnaround Time
X5: Service Products
X6: Implementing Competencies
X7: Executor Behavior

Conclusion

The results of the 2023 Surabaya Class I Monitor Center IKP survey show that the implementation of Bureaucratic Reform within the Surabaya Class I Monitor Center is very good, assessed by the public/public service users. Overall, users of Balai Monitor Class I Surabaya licensing services are very satisfied with the public services organized by him, with a User Satisfaction Index (IKP) value of 90.84. Service quality is rated as "A" and service performance is considered "EXCELLENT". Most of the IKP values for each type of licensing service are also high. Based on the Importance and Performance Analysis (IPA) analysis, several indicators must be a priority for improving licensing services in the Balmon SFR Class I Surabaya environment, namely:

a. X8: Complaints, Suggestions, and Feedback.
b. X9: Facilities and Infrastructure.

It is important to remember that indicators that are a priority for improving public services do not mean that they are considered indicators that do not satisfy service users. The indicator is included in quadrant I, meaning that it gets high expectations/importance from respondents, but its performance or achievement is still far from these expectations. Therefore, Balai SFR Monitor Class I Surabaya must find solutions to the gaps that occur by determining measurable recommendations in the form of action plans for improving the quality of public services in the future.

Bibliography

Askari, Sajad, Peiravian, Farideddin, Tilahun, Nebiyou, & Yousefi Baseri, Maryam. (2021). Determinants of users' perceived taxi service quality in the context of a developing country. *Transportation Letters*, *13*(2), 125–137.

Desta, Haftom, Berhe, Tesfay, & Hintsa, Solomon. (2018). Assessment of patients' satisfaction and associated factors among outpatients received mental health services at public hospitals of Mekelle Town, northern Ethiopia. *International Journal of Mental Health Systems*, *12*, 1–7.

Fung, Archon. (2015). Putting the public back into governance: The challenges of citizen participation and its future. *Public Administration Review*, *75*(4), 513–522. https://doi.org/10.1111/puar.12361

Getahun, Belete, & Nkosi, Zethu Zerish. (2017). Satisfaction of patients with directly observed treatment strategy in Addis Ababa, Ethiopia: a mixed-methods study. *PLoS One*, *12*(2), e0171209.

Imtiyaz, Nadiyah. (2018). *Analisis Kepuasan Nasabah Mikro Pegadaian dengan Menggunakan Metode Top Two Box dan Mean Konversi*. Universitas Brawijaya.

Lastri, Regina Adizia. (2022). *Implementasi Pengawasan Balai Monitor Spektrum Frekuensi Radio Kelas 1 Makassar Pada Perizinan Penggunaan Spektrum Frekuensi Radio*. Universitas Hasanuddin.

Prestiadi, Dedi, Zulkarnain, Wildan, & Sumarsono, Raden Bambang. (2019). Visionary leadership in total quality management: efforts to improve the quality of education in the industrial revolution 4.0. *The 4th International Conference on Education and Management (COEMA 2019)*, 202–206. Atlantis Press.

Putri, Kelani, & Sahuri, Chalid. (2017). *Efektivitas Kinerja Ombudsman Dalam Menangani Pengaduan Pelayanan (Kasus Maladministrasi Di Kota Pekanbaru)*. Riau University.

Rugenyi, Fred. (2016). Assessment of the influence of project management competence on the triple constraint in projects in Nairobi. *International Journal of Academic Research in Business and Social Sciences*, *6*(4), 295–309.

Sitorus, Sugianto Antoni. (2016). Identifikasi Perceived Quality Pelayanan Perizinan Dinas Penerbangan dan Maritim Berdasarkan Pendekatan Kepuasan Masyarakat di Lingkungan Direktorat Jenderal SDPPI. *InComTech: Jurnal Telekomunikasi Dan Komputer*, *7*(2), 155–178. https://doi.org/10.22441/incomtech.v7i2.1167