Study of SMS gateway service application at the one stop agency of Medan city investment and service for licensing customer satisfaction

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Abstract. This research is about the Index of Public Satisfaction on the management of public services that are managed specifically for its users through the application of a service information system called the SMS Gateway. This application system provides information on licensing services in the Medan City of One Stop Agency Service and Investment Service in fulfilling requests from licensing service users without having to come to the DPMPTSP Medan office to get information on the progress of permits that have been entered in the licensing application. This research has an important objective, namely to provide a measurable analysis of the ability of state civil apparatus to manage access to be information technology progress for the benefit of the community, especially users of SMS Gateway, which is based on the assessment of community satisfaction and demands for the development of the industrial era 4.0. Based on information received from the DPMPTSP in Medan City, which was every day at the customer hall serves no less than 40 people who need licensing services within the workday span of 3 months, Monday - Friday totalling 40 x 60 days = 2400 populations with the number of samples 331 people.

1. Introduction

Entwistle states that effective public administration services will be able to save budget so that the state budget can be allocated to needs that are directly related to people's welfare[1]. In addition, the effectiveness of administrative services will accelerate the fulfillment of administrative needs to accelerate the economic growth of the community.

The Medan One-Stop Integrated Investment and Service Office (DPMPTSP) is a licensing and non-licensing service in the form of a joint office that provides several types of public services to the community. The functions of the regional device for investment affairs as stipulated in Domestic Government Regulations 100 of 2016 are investment planning, development of investment climate, investment promotion, investment licensing, investment control and implementation as well as processing of investment data and information.

Regulations of the Mayor of Medan Number 69 of 2017 are concerning the Duties and Functions of the Planting Service. Medan City's One Stop Integrated Capital and Services, it is stated that the Investment Office and PTSP are implementing elements of government affairs in the field of investment and integrated one-stop services led by the Head of the Office who is under and responsible to the Mayor
through the Regional Secretary. The Office has the duty and obligation to assist the Mayor in implementing government affairs in the field of investment and one-stop integrated services. To support performance in carrying out is its main tasks and functions, namely to improve public services to the applicants and related parties who need data and information from the DPMPTSP of the Medan City Government. One of the planned improvements in the service is the development of the mobile website DPMPTSP, namely the Preparation of Media Licensing Process Information in the form of SMS gateways at the Medan City Government's One Stop Investment Service, which are part of further services and are built to further improve service to applicants get the data and information they need. It is projected that this service is expected to improve service to the community as existing applicants and improve the system of government work that can run more effectively and efficiently in accordance with the principles of good governance and e-government. With the presentation of the communication media application in the form of an SMS gateway through the cellular telephone, it will produce a different model of interaction between the local government and the community intended to shorten the distance between the government and the community. It will naturally increase transparency and accountability.

Through the SMS gateway application system, the public as users of licensing services after filing in Medan City DPMPTSP, the community only needs to use short message service (SMS) via their cellular phone. Similarly is to monitor and to find out the requirements for processing permits, simply by SMS. Even though SMS is less conventional than Android application that also developed in Medan City for Tax measurement[2], we can say it is still useful enough. Through the application, if there is any notification submitted to the community, DPMPTSP simply uses SMS. Based on the growth of household access to cellphones issued by Balitbang Communication and Information Technology in 2016, 84.4% of 55.3 million households in both urban and rural areas have and use wireless mobile phones in other words that the use of bureaucratic services through technology access information is considered to be applicable because most people already understand its use. The results of this study will become one of the benchmarks for achieving and improving access to product services that will be carried out by Medan City DPMPTSP in improving the quality of services for people who use licensing services and at the same time adjust to the grand design of ASN 2020-2024 development.

2. Research Method
The research design used in this study was a combination of qualitative and quantitative, which was trying to provide an accurate description or explanation of the problems under study, interpreting and explaining data that exists systematically based on facts that appear or as they were. The combination method or also commonly called combined research method was a research approach that combines or connects between quantitative and qualitative research methods[3]. Combined research methods was useful if quantitative methods or qualitative methods alone were not accurate enough to be used to understand research problems, or by using quantitative and qualitative methods in combination will be able to get the best understanding compared to one method.

3. Data Acquisition
Retrieving data with observation instruments, interviews, field notes and document usage. The source of primary data was data obtained directly with the informant interview technique or direct source. Primary sources were data sources that directly provide data to data collectors[4]. The primary data source in this study was the respondents / service users (customers) who used integrated licensing services.

Population was a generalization area consisting of: objects / subjects that have certain qualities and characteristics[4]. The population in this study was the people who had obtained licensing services at the Medan Investment and Integrated Licensing Service Office. Because in this study using a questionnaire was as a data collection tool, this study also used research respondents. Based on information received from the Medan City DPMPTSP, which was every day at the customer hall serves no less than 40 people who need licensing services within the workday span of 3 months, Monday - Friday totaling 40 x 60 days = 2400 populations.
The sampling technique can be adjusted to the type of service, the purpose of the survey and the data to be obtained. Respondents were randomly selected according to the coverage area of each service unit. Whereas for sample and population magnitudes use a sample table from Krejcie and Morgan or calculated using the formula:

\[ S = \frac{\lambda^2 \cdot N \cdot P \cdot Q}{d^2 (N-1) + \lambda^2 \cdot P \cdot Q} \]  

Where:
- \( S \) = number of samples
- \( \lambda^2 \) = lambda (multiplier) with \( \text{dk} = 1 \), the error rate can be 1%, 5%, 10%
- \( N \) = population
- \( P \) (normal population spread) = \( Q = 0.5 \), \( d = 0.0 \)

The analysis technique was used in making the frequency distribution table set the classification of answers as much as 4 classes, with the consideration that the determination of the classification of answers was adjusted to the number of categories / classes used in making questionnaires based on a Likert scale, namely:

Table 2. Table of Likert scale

| Value of Perception | Value Of Interval (NI) | Value Of Conversion Interval (NIK) | Service Quality (X) | Performance of The Service Unit (Y) |
|---------------------|------------------------|------------------------------------|---------------------|-------------------------------------|
| 1                   | 1.00 – 2.5996          | 25.00 – 64.99                      | D                   | Not Good                            |
| 2                   | 2.60 – 3.064           | 65.00 – 76.60                      | C                   | Rather Good                         |
| 3                   | 3.0644 – 3.532         | 76.61 – 88.30                      | B                   | Good                                |
| 4                   | 3.5324 – 4.00          | 88.31 – 100.00                     | A                   | Very Good                           |

With the kind of indicators through the Elements of the Community Satisfaction Survey in this regulation include:
1. Requirements
2. Systems, Mechanisms, and Procedures
3. Time of Settlement
4. Fees / Rates *)
5. Product Type of Service Specifications
6. Implementing Competencies **)
7. Implementing Behavior **)
8. Handling Complaints, Suggestions and Feedback
9. Facilities and infrastructure

4. Results and Discussion
Considering the basis of the evaluation of elements of Community Satisfaction as stipulated in ministerial regulations, a number of measures that were benchmarks and described in accordance with Minister of PAN-RB Regulation No. 14 of 2017 include[5]:

| Population (N) | Sample (n) | Population (N) | Sample (n) | Population (N) | Sample (n) |
|---------------|------------|---------------|------------|---------------|------------|
| 55            | 48         | 320           | 175        | 2200          | 327        |
| 60            | 52         | 340           | 181        | 2400          | 331        |
| 65            | 56         | 360           | 186        | 2600          | 335        |
4.1. Requirements
Requirements were conditions that must be met in the management of a type of service, both technical and administrative requirements. From the results of the analysis obtained an average score of 3.20 is in the interval score of 3.0644 – 3.532 in the category "GOOD".

| Table 3. Table of Requirements |
|--------------------------------|
| No. | Answers       | Score | Frequency |
|     |               |       | F  | f.x | %  |
| 1.  | Very Good     | 4     | 134| 536 | 40 |
| 2.  | Good          | 3     | 141| 423 | 42 |
| 3.  | Rather Good   | 2     | 43 | 86  | 13 |
| 4.  | Not Good      | 1     | 13 | 13  | 5  |
|     | Total         |       | 331| 1058| 100|

4.2. Systems, Mechanisms and Procedures
Procedures were procedures for standardized services for providers and recipients of services, including complaints. From the results of the analysis obtained an average score of 3.18 is in the interval score of 3.0644 – 3.532 in the category "GOOD".

| Table 4. Systems, Mechanisms and Procedures |
|---------------------------------------------|
| No. | Answer   | Score | Frequency |
|     |          |       | F  | f.x | %  |
| 1.  | Very Good| 4     | 132| 528 | 40 |
| 2.  | Good     | 3     | 136| 408 | 41 |
| 3.  | Rather Good | 2 | 52 | 104 | 16 |
| 4.  | Not Good | 1     | 11 | 11  | 3  |
|     | Total    |       | 331| 1051| 100|

4.3. Service Time
Service time was the period of time needed to complete the entire service process of each type of service. From the results of the analysis obtained an average score of 3.15 in the interval score of 3.0644 – 3.532 in the category "FAST".

| Table 5. Service Time |
|-----------------------|
| NO | Answers   | Score | Frequency |
|    |           |       | F  | f.x | %  |
| 1. | Very Good | 4     | 140| 560 | 36 |
| 2. | Good      | 3     | 130| 390 | 33 |
| 3. | Rather Good | 2 | 33 | 66  | 16 |
| 4. | Not Good  | 1     | 28 | 28  | 15 |
|    | Total     |       | 331| 1044| 100|

4.4. Fees / Rates
Fees / Tariffs are fees charged to people receiving SMS GATEWAY services in Medan City Investment and One Stop Services in managing and / or obtaining services from operators, the amount of which was based on an agreement between the organizer and the community with the delivery rates announced via GATEWAY SMS. From the results of the analysis obtained an average score of 3.27 in the interval score of 3.0644 – 3.532 in the category "GOOD".

| Table 6. Fees / Rates |
|-----------------------|
| NO | Answers | Score | Frequency |
|    |         |       | F  | f.x | %  |

4
1. Very Good 4 142 568 41
2. Good 3 147 441 44
3. Rather Good 2 31 62 10
4. Not Good 1 11 11 5
Total 331 1082 100

4.5. Product Type of Service Specifications
The SMS Gateway service product was the result of each type of service specification. From the results of the analysis, the average score of 3.17 was in the interval score of 3.0644 – 3.532 in the category "GOOD".

| No. | Answers        | Score | Frequency |
|-----|----------------|-------|-----------|
|     |                |       | F | f.x | % |
| 1.  | Very Good      | 4     | 135| 540 | 41|
| 2.  | Good           | 3     | 141| 423 | 43|
| 3.  | Rather Good    | 2     | 33 | 66  | 9 |
| 4.  | Not Good       | 1     | 22 | 22  | 7 |
|     | Total          |       | 331| 1051| 100|

4.6. Implementing Competencies
Implementing competence was the ability that must be possessed by the executor including knowledge, expertise, skills, and experience. From the results of the analysis was obtained an average score of 3.27 in the interval score of 3.0644 – 3.532 in the category "GOOD".

| NO | Answers       | Score | Frequency |
|----|---------------|-------|-----------|
|    |               |       | F | f. x | % |
| 1. | Very Good     | 4     | 152| 608  | 46|
| 2. | Good          | 3     | 136| 408  | 41|
| 3. | Rather Good   | 2     | 22 | 44   | 13|
| 4. | Not Good      | 1     | 21 | 21   | 10|
|    | Total         |       | 331| 1081 | 100|

4.7. Implementing Behavior
Implementing behavior was the attitude of officers in providing services. From the results of the analysis obtained an average score of 3.18 was in the interval score of 3.0644 – 3.532 in the category "GOOD".

| No. | Answers     | Score | Frequency |
|-----|-------------|-------|-----------|
|     |             |       | F | f. x | % |
| 1.  | Very Good   | 4     | 151| 604  | 45|
| 2.  | Good        | 3     | 114| 342  | 34|
| 3.  | Rather Good | 2     | 43 | 86   | 13|
| 4.  | Not Good    | 1     | 23 | 23   | 8 |
|     | Total       |       | 331| 1055 | 100|

4.8. Handling Complaints, Suggestions and Feedback
Complaint handling, suggestions and input were procedures for implementing complaints handling and follow-up. From the results of the analysis, the average score was 3.22 in the interval score of 3.0644 – 3.532 in the category "GOOD".

| NO | Answers      | Score | Frequency |
|----|--------------|-------|-----------|
| 1  | Very Good    | 4     | 146 584   |
| 2  | Good         | 3     | 119 357   |
| 3  | Rather Good  | 2     | 61 122    |
| 4  | Not Good     | 1     | 5 5 2     |
|    | Total        |       | 331 1068  |

4.9. Facilities and infrastructure
Facilities and infrastructure were media that were used or become places and support for implementing services. From the results of the analysis obtained the value of the score is equal to 3.1 in the interval score of 3.0644 – 3.532 in the category "GOOD".

| No. | Answers       | Score | Frequency |
|-----|---------------|-------|-----------|
| 1   | Very Good     | 4     | 102 408   |
| 2   | Good          | 3     | 165 495   |
| 3   | Rather Good   | 2     | 61 122    |
| 4   | Not Good      | 1     | 3 3 1     |
|     | Total         |       | 331 1028  |

| No. | Indicators                                      | The Average of Score | Category |
|-----|------------------------------------------------|----------------------|----------|
| 1   | Requirements                                    | 3.2                  | Good     |
| 2   | Systems, Mechanisms and Procedures              | 3.18                 | Good     |
| 3   | Time Services                                   | 3.15                 | Good     |
| 4   | Fees / Rates                                    | 3.27                 | Good     |
| 5   | Product Type of Service Specifications          | 3.17                 | Good     |
| 6   | Implementing Competencies                       | 3.27                 | Good     |
| 7   | Implementing Behavior                           | 3.18                 | Good     |
| 8   | Handling Complaints, Suggestions and Feedback   | 3.22                 | Good     |
| 9   | Facilities and Infrastructures                  | 3.10                 | Good     |
|     | Average                                         | 3.19                 | Good     |

5. Conclusion
From the discussion of questionnaires to primary data totaling 331 questionnaires to see the results of the community satisfaction survey using the SMS GATEWAY service in the Investment and One-Stop Services and the results of data analysis conducted by the table it was known that the Community Satisfaction Index (SMS) GATEWAY at Investment and Integrated One-Stop Service about 77.85% were in the "GOOD" category (in the interval 76.61 to 88.30). The IKM results mentioned above consist of nine size indicators.
Service Quality at the use of the GATEWAY SMS Investment Office and the One-Stop Integrated Services in the City of Medan by the applicant shows a weight of 3.19 with the category of GOOD with Type B.

The Impact, the service of the SMS GATEWAY application provides an orientation to change the relationship of licensing services better to the community/customer so that in the future the ease and magnitude of investment in the city of Medan can provide meaningful development sensitive to the economic development of industrial revolution 4.0. It was responsive to technology and information.

6. Suggestion
Based on the results of the study, the suggestions that can be given are as follows:

1. The involvement of all relevant elements in the Regional Government and the Community will help the development of the SMS GATEWAY program that has targeted outlook and objectives in the process of adaptation of bureaucratic and community capabilities in the work culture of industrial revolution 4.0

2. Supervision and development of a work culture that uses technological advances at least cooperates with academics in the performance of government apparatus in every service that is based on service orientation as a consequence of responsibility.

3. Understanding the NPS (New Public Service) at each of each DPMPTSP Medan City employee with the Target:
   a. Encouraging community participation as users of SMS Gateway services in assessing the performance of service providers.
   b. Encouraging SMS Gateway service providers to improve the quality of public services.
   c. Encouraging SMS Gateway service providers to be more innovative in providing public services.

4. Maintaining the spirit of cooperation and compliance of the working group needs to be improved, so that the work discipline is maintained consistently creating effective and efficient services.

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