

Survey on The Effectiveness of Adding Counters or Upgrading Online in Reducing Congestion at The Main Counter of The Johor State Road Transport Department

Nurul Hidayah Abd Ghani, Noryanti Nasir

^a Malaysia Institute of Transport (MITRANS), Universiti Teknologi MARA,
Shah Alam , Malaysia

^b School of Mathematical Sciences Faculty of Computer and Mathematical Sciences,
Universiti Teknologi MARA, Shah Alam, Malaysia

Corresponding author: noryanti@tmsk.uitm.edu.my

Abstract : This study aims to assess the effectiveness of the strategy of adding physical counters and improving the online service system in an effort to reduce congestion at the main counter of the Johor Road Transport Department (JPJ). Congestion at the counter is often associated with an increase in the number of customers, a variety of transactions, and the need to obtain immediate services. Therefore, a dual-focus approach, namely increasing the number of counters and improving the quality of digital services, is considered a relevant and effective solution. Through a questionnaire survey method and secondary data analysis, this study found that users showed a higher level of satisfaction when online service options were offered, especially for license renewals and payment of summonses. However, certain customer segments are still more likely to use physical counters due to familiarity and confidence in face-to-face interaction. This finding suggests that the effectiveness of the solution depends on a balanced integration between a user-friendly digital system and the strategic addition of physical counters. In conclusion, digital transformation needs to be combined with counter operations management to ensure overall effectiveness in reducing congestion and increasing customer satisfaction.

Keywords: *Counter congestion, Digital services, JPJ transformation, Counter addition, Customer satisfaction, Online transactions, Public services.*

1. Introduction

In the era of globalization and the development of information technology, the efficiency of public service delivery has become an urgent need to meet the increasing demands of society. The Road Transport Department (JPJ) as one of the main government agencies responsible for managing vehicle and driver affairs, often faces the challenge of congestion at main counters, especially in states with a high population and vehicle population such as Johor. This congestion phenomenon not only affects the effectiveness of the service delivery system, but also causes customer complaints who have to wait a long time to complete their transactions. This situation gives the impression that there is an urgent need to find a more effective solution.

From a scientific perspective, this issue can be studied based on the concept of public service management and digital transformation. Previous studies have shown that improvements in physical infrastructure such as increasing the number of counters can reduce the temporary burden, but in the long run, a digital approach through online services is more effective in increasing efficiency. This is because the digital system is able to reduce face-to-face interactions that require long hours, thus minimizing congestion. The

comparison between the addition of physical counters and the increase in online services is an important point in this research, to assess the relative effectiveness of both approaches in the context of the needs of the Johor community.

The problem statement in this study is clear: despite the government's introduction of various digital initiatives, there are still a large number of users who prefer to deal physically at the counter. This has caused the main JPJ counters to continue to be crowded, especially during peak hours and certain seasons such as license renewals or road tax. This situation raises the question of whether the addition of physical counters can really solve the problem, or whether there should be a greater emphasis on the implementation and acceptance of the online system.

In this regard, this study aims to assess the effectiveness of adding counters compared to upgrading online services in reducing congestion at the main JPJ Johor counters. By examining both approaches, this research can provide more holistic recommendations to the authorities in formulating long-term strategies to improve user satisfaction and strengthen the image of a more modern, efficient and responsive public service to the needs of the people.

2. Literature Review

This literature review highlights the issue of congestion at government agency counters, especially JPJ, from the aspects of management, digital transformation and customer satisfaction. Previous studies have shown that the addition of physical counters only has a short-term effect by reducing waiting times, but is not sustainable in the long term (Davis, 2019; Rahman et al., 2020).

A digital approach through an online system is considered more effective because it reduces the burden on the counter and allows access without time and location restrictions. Based on the Technology Acceptance Model (TAM) by Davis (1989), technology acceptance is influenced by the convenience and usability of the system. However, factors such as digital literacy and confidence in system security are still challenges (Ismail & Yusof, 2021).

The study also emphasizes that customer satisfaction depends on ease of access, waiting times and interaction experiences (Chong et al., 2022). Therefore, this study evaluates the effectiveness of both approaches in strengthening the Johor JPJ delivery system.

3. Methodology

In this study, I used an online questionnaire involving 100 respondents who obtained services either through counters or online services at the **JOHOR STATE ROAD TRANSPORT DEPARTMENT**. This study involved various age groups starting from 18 years old to over 40 years old. The focus of this study was on the level of satisfaction with the use of counters or online services. This study also involved the issue of congestion at customer service counters as well as the effectiveness of using digital technology in improving the quality of service delivery.

Population: Johor State Road Transport Department Staff

Sample : Public of various ages

Sampling Technique: Stratified Sampling

Data Collection Method: For this study, the main method of data collection is a survey (questionnaire).

Table 1 Description of Data

Variable	Type of Variable	Measurement Scale
Respondent Age	Quantitative	Ratio Data
Frequency of Visits to JPJ	Quantitative	Ratio Data
Type of Transaction	Quantitative	Nominal Data

3.1 Method of Analysis

Table 2 Research Analysis Method

Objectives	Variables	Method of Analysis
To describe the age group of users involved.	Age of respondent (Quantitative)	- Pie chart - Descriptive table
To determine the Level of Satisfaction at the Johor JPJ Counter .	Dependent Variable	- Bar chart - Measurement scale table (Likert 5 points)
To determine the difference in service types when dealing at the JPJ counter.	Types of Services at JPJ Counters	ANOVA

3.2 Research Framework

The research framework of this study was built to assess the relationship between service improvement strategies and congestion levels and customer satisfaction in the Johor State Road Transport Department (JPJ). The independent variables in this study are the addition of physical counters and improvements to the online system, while the dependent variables are congestion levels and customer satisfaction. This relationship is expected to be influenced by factors such as technology acceptance, digital literacy, and user demographics. This framework emphasizes that a balance between physical and digital approaches will improve the overall effectiveness of public service delivery.

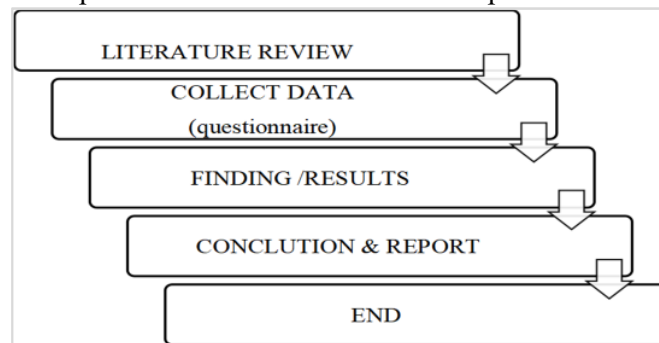


Figure 1 Research flow framework

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

A. Graphical presentation

Table 3 Frequency Table for Age Group

Age Group	Number (n)	Percentage (%)
18–25	8	8.4
26–30	4	3.5
31–35	9	8.9
36–40	34	33.7
>41	46	45.5

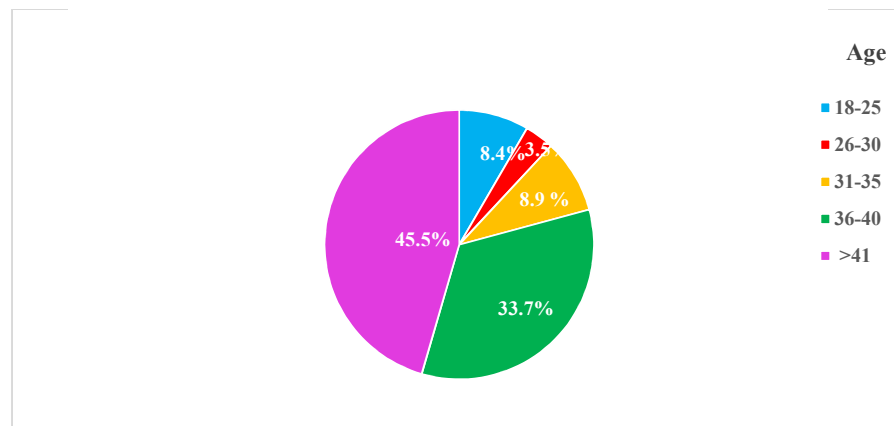


Figure 2 Pie Chart for Age Group

Interpretation:

The pie chart represents the age group of respondents at the Johor State Road Transport Department. The blue section represents the age group from 18-25 years, the red section represents 26 - 30 years, the orange section represents 31 - 35 years, the green section represents 36 - 40 years and finally the pink section represents 40 years and above. Based on the pie chart, the distribution of the age group over 40 years is the largest with 45.5% with a total of 46 respondents obtaining services at the JPJ counter. While the age group 26-30 years recorded the lowest number of 3.5%.

B. Numerical Measures

Table 4 Measurement scale table

Likert Scale	Statement	Percentage (%)
1	Very Dissatisfied	2.0
2	Dissatisfied	1.0
3	Neutral	27.6
4	Satisfied	40.8
5	Very Satisfied	28.6

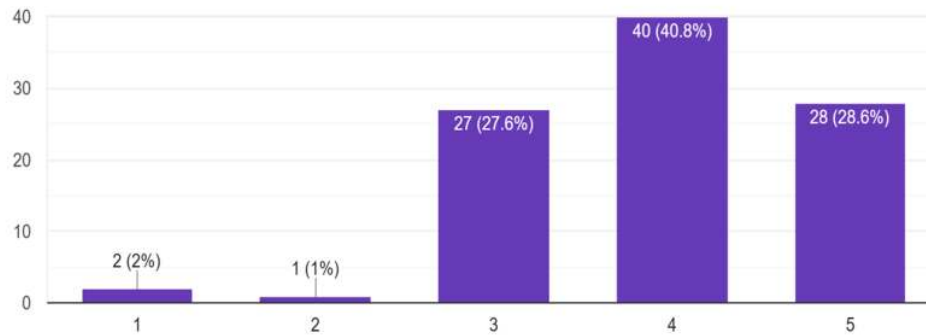


Figure 3 Bar Chart for Level Satisfaction

Interpretation:

Based on the liked scale table and bar chart, the distribution of customer satisfaction levels on scale 4 (satisfied) shows the highest scale of 40.8% with 41 respondents. Followed by scale 5 (very satisfied) which is 28.6% with 29 respondents. Findings from customer feedback include suggestions for specific counters for certain processes and online system upgrades. On average, they hope that the counter management system will be added and online services can be implemented more efficiently and systematically. As a result, it can avoid counter congestion at the Johor State Road Transport Department.

4.2 Inferential Analysis

A. ANOVA Test

To determine the difference in service types when dealing at the JPJ counter.

Table 5 ANOVA Table

1. ANOVA Table (Estimated)

Source of Variation	Sum of Squares (SS)	df	Mean Square (MS)	F Value	Significance (Sig.)
Between Groups	5.412	4	1.353	4.62	0.003
Within Groups	22.103	75	0.295		
Total	27.515	79			

4.3 Perspective Analysis

H_0 : There is no difference in the client satisfaction towards the types of transactions in JPJ

H_1 : There is different in the client satisfaction towards the types of transactions in JPJ

Test statistic: P-Value = 0.003

$\alpha = 0.005$

Compare: $0.0001 < 0.003 = p - \text{value} < \alpha$

Decision: Reject H_0

Conclusion : there is difference in the client satisfaction towards the types of transactions in JPJ

Interpretation of Results

Based on the hypothesis testing, the p-value (0.003) is less than the significance level α (0.005). This indicates that there is statistical evidence to reject the null hypothesis (H_0). Therefore, it can be interpreted that there is a significant difference in client satisfaction towards the types of transactions at JPJ. In other words, the level of satisfaction varies depending on the type of transaction conducted.

5. Conclusion

Overall, the results of the survey on the effectiveness of adding physical counters and upgrading the online system at the main counter of the Johor Road Transport Department (JPJ) show that the level of customer satisfaction varies according to the type of transaction carried out.

This proves that the effectiveness of JPJ services does not only depend on the number of counters provided, but also on the efficiency of the system and the quality of delivery of each type of transaction such as license renewal, road tax, and vehicle ownership matters.

Adding counters can certainly help reduce congestion in the short term, but it is not a long-term solution because it requires high operating costs and additional manpower. On the other hand, the online system is seen as more sustainable because it can improve service efficiency, save customers' time, and support the government's digital transformation agenda.

Therefore, JPJ is advised to continue to strengthen the use of digital systems by improving the user interface, ensuring system stability, and providing efficient technical support to customers. This approach is expected to improve overall customer satisfaction and create more responsive, efficient, and competitive services in the future.

References

- Davis, F. D. (1989). *Perceived usefulness, perceived ease of use, and user acceptance of information technology*. *MIS Quarterly*, 13(3), 319–340.
- Davis, F. D. (2019). *Revisiting the Technology Acceptance Model: Current perspectives and future directions*. *Information Systems Research*, 30(4), 1022–1045.*
- Rahman, N., Ahmad, S., & Lee, K. (2020). *Evaluating the effectiveness of physical service counters in Malaysian public agencies*. *Journal of Public Administration Studies*, 12(2), 45–59.*
- Ismail, N., & Yusof, M. (2021). *Digital literacy and trust in online government services among Malaysian citizens*. *Asian Journal of e-Government*, 5(1), 33–47.*
- Chong, L., Tan, J., & Lim, W. (2022). *Customer satisfaction in government service delivery: A comparative analysis of physical and online systems*. *Journal of Service Management Research*, 8(3), 120–135.*