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# EXPLORING TAXI DRIVERS' READINESS TO USE SMARTPHONE APPLICATIONS FOR E-HAILING SERVICES

N. F. S. Seliman
Industrial Logistics, University Kuala Lumpur Malaysian Institute of Industrial Technology, 81750, Masai, Johor, Malaysia
fatin.seliman@s.unikl.edu.my

Ts. Dr. H. R. Md Sapry
Industrial Logistics, University Kuala Lumpur Malaysian Institute of Industrial Technology, 81750, Masai, Johor, Malaysia
hrizad75@gmail.com

*Corresponding author's email: fatin.seliman@s.unikl.edu.my

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**ABSTRACT**

The rapid advancement of technology has brought about various innovative solutions that cater to the convenience of individuals in meeting their needs and desires. E-hailing services have mainly gained immense popularity among customers. However, a dearth of research remains on taxi drivers' attitudes and preparedness towards embracing e-hailing services in Malaysia. This empirical study aims to bridge this gap by identifying the factors that impede the adoption of mobile applications for e-hailing services among taxi drivers. The study leverages the Mobile Technology Acceptance Model (MTAM) and the Theory of Planned Behaviour (TPB) as theoretical frameworks to comprehend the readiness of taxi drivers to accept mobile application technology for e-hailing services. Through a survey methodology, data is collected from participants, providing valuable insights to enhance taxi drivers' engagement with e-hailing services. The findings reveal that certain independent variables such as volunteer, skill, mobile perceived compatibility, mobile perceived financial resources, and mobile perceived trust are insignificant to the dependent variables. Furthermore, the findings of this study have important implications for the development of e-hailing services in Malaysia. The findings suggest that e-hailing providers need to address the concerns of taxi drivers in order to increase their adoption of e-hailing services. By collaborating with the government to do training and other activities to improve taxi driver readiness for e-hailing services, e-hailing providers can resolve the concerns of taxi drivers regarding adopting mobile applications for e-hailing services. Further research is needed to identify and understand these factors to develop effective strategies to increase taxi drivers' adoption of e-hailing services.

## 1.0 Introduction

Taxi drivers are facing challenges due to the growing popularity of e-hailing services. Many taxi drivers are reluctant to adopt e-hailing services, due to a number of factors, including their

age, familiarity with technology, and comfort level with using mobile applications. This study aims to explore the factors that hinder taxi drivers from adopting e-hailing services, and to develop a recommendation framework for encouraging their participation in these services. The study will be conducted in Johor Bahru, Malaysia, and will use the Mobile Technology Acceptance Model (MTAM) to understand the readiness of taxi drivers to adopt e-hailing technology. The study's findings will be used to develop a holistic framework for helping taxi drivers adopt e-hailing services. Taxi drivers are facing increasing competition from e-hailing services, which are more convenient and transparent for passengers. Many taxi drivers are reluctant to adopt e-hailing services, due to their age, familiarity with technology, and comfort level with using mobile applications. This study will use the Mobile Technology Acceptance Model (MTAM) to understand the readiness of taxi drivers to adopt e-hailing technology. The study's findings will be used to develop a holistic framework for helping taxi drivers adopt e-hailing services.

## 2.0 Literature Review

This chapter consists of an overview of past literature as well as articles from other journals that are relevant to this research. Therefore, this chapter will be more focused on the related scope of the previous chapter. Based on the findings of the taxi drivers' readiness to use smartphone applications for e-hailing services. The readiness of the e-hailing service toward taxi driver is still not enough to make them adapt the e-hailing. This will include the analysis of technology acceptance of e-hailing services.

### 2.1 Taxi Industry

The taxi, also called as a taxicab or cab, is a form of vehicle for hire with a driver that is often hired by a single passenger or a small group of people for a non-shared ride. A taxicab transports passengers to their preferred destinations. This contrasts with public transportation, where the pick-up and drop-off sites are determined by the service provider and not the passengers, but demand-responsive transport and shared taxis provide such a hybrid bus or taxi option.

### 2.2 E-Hailing Services

E-hailing is a service that allows users to reserve public transportation services via electronic applications. These services include e-hailing and taxi services. E-hailing vehicle is a private vehicle that provides public transportation services to passengers who reserve via electronic applications. This transportation method is currently popular because it offers numerous advantages to both passengers and drivers. [1]

### 2.3 Smartphone Application

As Traditionally, customers hail empty-cruising taxis on the street, which may offer low levels of comfort and efficiency, particularly during rush hours and in inclement weather. With the advancement of smartphone technology, e-hailing applications that allow customers to hail taxis via their smartphones are gaining worldwide popularity [2].

## 2.4 Theory of Planned Behaviour (TPB)

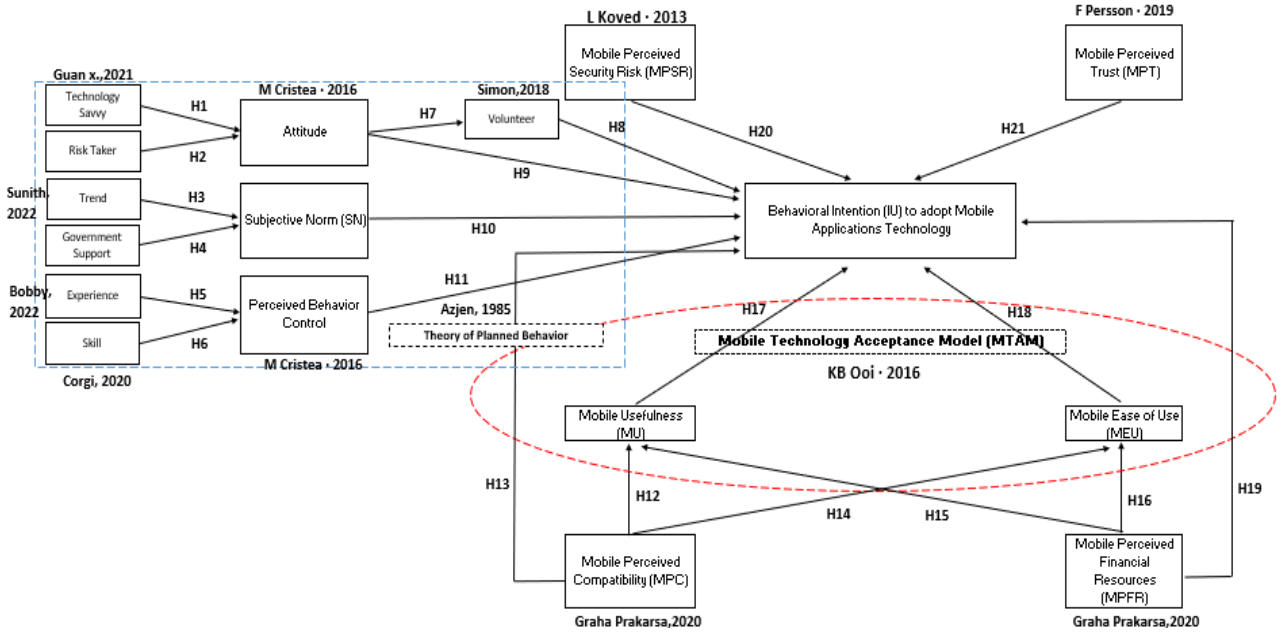
According to the TPB, a person's intentions and behaviour are heavily influenced by their attitude, subjective norms, and perceived behavioural control. Both theories are frequently employed to examine the causes of intention to use information system and technology in addition to other fields, such as marketing, public relations, healthcare, sustainability, etc. Subjective norms significantly influenced the intention to use and re-use e-hailing services [3]. The primary reason why the Theory of Planned Behaviour is more accurate is the inclusion of perceived behavioural control, which considers whether a person truly believes they have control over the desired behaviour.

## 2.5 Mobile Technology Acceptance Model (MTAM)

One of which is the MTAM established by Ooi and Tan. This model tackles one of the primary limitations of TAM, which is its original definition. [4] Davis created TAM to investigate the factors that influence people's inclinations to adopt new technology. Given its simple theoretical underpinning, this is one of the most generally recognized and widely used models for analysing the intention to embrace novel technology. Consequently, additional TAM versions have been devised to address the constraints of the original TAM. [5]

## 2.6 Research Framework

*Figure 1: Conceptual Framework*




## 3.0 Methodology

This chapter discusses the research methodology used in the study. The research method used is quantitative, and the data collection instrument is a questionnaire. The questionnaire was designed to collect data on the factors that hinder taxi drivers from adopting smartphone applications for e-hailing services, the Mobile Technology Acceptance Model (MTAM) in explaining the readiness of taxi drivers to adopt mobile applications technology for e-hailing services, and a recommendation framework for taxi drivers to improve their readiness to adopt

mobile applications technology for e-hailing services. The population of the study is all taxi drivers in Larkin Sentral, Johor Bahru. The sample size is 91 taxi drivers. The sampling method used is a convenience sampling method. The questionnaire was distributed to taxi drivers at Larkin Sentral. The data collected from the questionnaire was analysed using descriptive statistics and inferential statistics. Descriptive statistics were used to describe the sample population. Inferential statistics were used to test the hypotheses of the study. The results of the study showed that the main factors that hinder taxi drivers from adopting smartphone applications for e-hailing services.

## 4.0 Result and Discussion

The researcher will analyse the data gathered throughout this study in this chapter. The researcher will use descriptive analysis and Partial Least Squares Structural Equation Modelling (PLS-SEM), which incorporates the Measurement and Modelling assessment. To interpret the results, use a structural model. The structural model determines the relevance of the proposed connections. To assess the link between predictors and outcomes, it offered various hypotheses. After the researcher collected and filtered all the data, there were three sets of questionnaires, and the researcher will use this data to discuss and interpret further.

## 4.1 Tables

*Table 1: Finding Research Objective 1*

| INPUT | SD | D | N | A | SA | MEAN | STD DEV |
|---|---|---|---|---|---|---|---|
| Doesn't have experience | 14 (15.4%) | 33 (36.3%) | 24 (26.4%) | 16 (17.6%) | 4 (4.4%) | 2.593 | 1.079 |
| Difficulty to use the smartphone application | 4 (4.4%) | 40 (44%) | 22 (24.2%) | 19 (20.9%) | 6 (6.6%) | 2.813 | 1.026 |
| Government role | 4 (4.4%) | 3 (3.3%) | 32 (35.2%) | 44 (48.4%) | 8 (8.8%) | 3.538 | 0.868 |
| Age factors | 3 (3.3%) | 25 (27.5%) | 17 (18.7%) | 40 (44%) | 6 (6.6%) | 3.231 | 1.028 |
| Many procedures | 3 (3.3%) | 6 (6.6%) | 39 (42.9%) | 29 (31.9%) | 14 (15.4%) | 3.495 | 0.942 |
| Not enough information | 3 (3.3%) | 5 (5.5%) | 49 (53.8%) | 28 (30.8%) | 6 (6.6%) | 3.319 | 0.810 |
| Lower demand | 3 (3.3%) | - | 13 (14.3%) | 29 (31.9%) | 46 (50.5%) | 4.264 | 0.936 |

*Table 2: Finding Research Objective 2*

| Hypothesis | Relationship | T-Value | P-Value | Decision |
|---|---|---|---|---|
| H1 | Technology Savvy -> Attitude | 9.006 | 0.000 | Supported |
| H2 | Risk Taker -> Attitude | 2.007 | 0.045 | Supported |
| H3 | Trend -> Subjective Norm | 8.475 | 0.000 | Supported |
| H4 | Government Support -> Subjective Norm | 4.273 | 0.000 | Supported |

| | | | | |
|---|---|---|---|---|
| H5 | Experience -> Perceived Behaviour Control | 17.135 | 0.000 | Supported |
| H6 | Skill -> Perceived Behaviour Control | 0.719 | 0.472 | Not Supported |
| H7 | Attitude -> Volunteer | 6.643 | 0.000 | Supported |
| H8 | Volunteer -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 0.729 | 0.466 | Not Supported |
| H9 | Attitude -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 2.422 | 0.015 | Supported |
| H10 | Subjective Norm -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 3.309 | 0.001 | Supported |
| H11 | Perceived Behaviour Control -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 2.008 | 0.045 | Supported |
| H12 | Mobile Perceived Compatibility -> Mobile Usefulness | 7.033 | 0.000 | Supported |
| H13 | Mobile Perceived Compatibility -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 0.838 | 0.402 | Not Supported |
| H14 | Mobile Perceived Compatibility -> Mobile Ease of Use | 0.436 | 0.663 | Not Supported |
| H15 | Mobile Perceived Financial Resources -> Mobile Usefulness | 3.600 | 0.000 | Supported |
| H16 | Mobile Perceived Financial Resources -> Mobile Ease of Use | 9.285 | 0.000 | Supported |
| H17 | Mobile Usefulness -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 2.108 | 0.035 | Supported |
| H18 | Mobile Ease of Use -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 2.269 | 0.023 | Supported |
| H19 | Mobile Perceived Financial Resources -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 0.240 | 0.810 | Not Supported |
| H20 | Mobile Perceived Security Risk -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 3.478 | 0.001 | Supported |
| H21 | Mobile Perceived Trust -> Behavioural Intention (IU) to Adopt Mobile Applications Technology | 0.358 | 0.720 | Not Supported |

*Figure 1: Smart PLS model, Finding Research Objective 3*

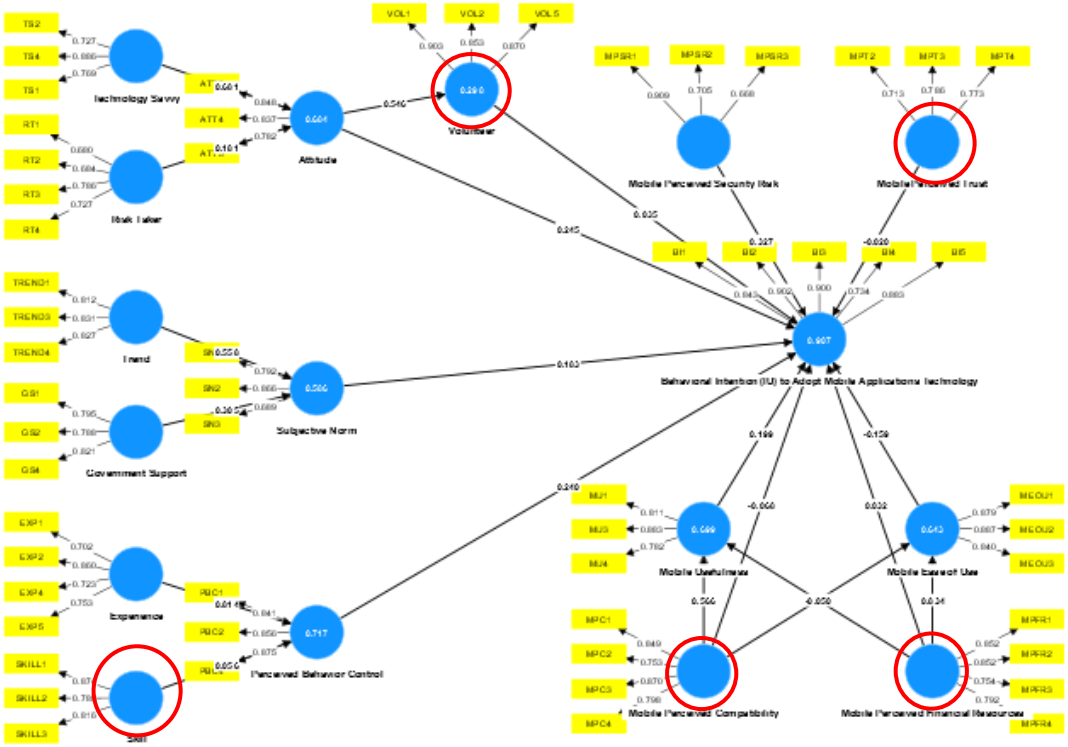
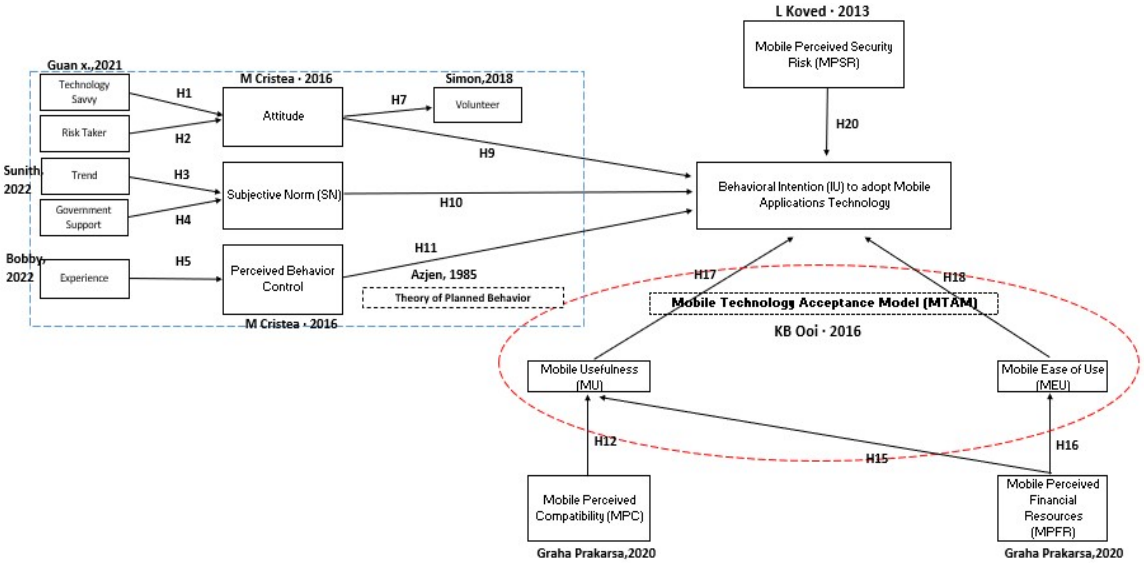


*Figure 2: New Framework Model*




## 5.0 Discussion and Recommendation

This study investigated the readiness of taxi drivers to adopt smartphone applications for e-hailing services. The study used a quantitative method, with a questionnaire distributed to 91 taxi drivers in Larkin Sentral, Johor Bahru. The study found that taxi drivers were generally positive about e-hailing services, but there were some challenges that needed to be addressed. These challenges included lack of familiarity with technology, concerns about safety and

security, concerns about the impact on their income. The study recommends that future research use a mixed-methods approach to collect more data on these challenges. The study also recommends that the scope of the research be expanded to include more locations. The study found that taxi drivers were generally positive about e-hailing services, but there were some challenges that needed to be addressed. The study recommends that future research use a mixed-methods approach to collect more data on these challenges. The study also recommends that the scope of the research be expanded to include more locations.

## 6.0 Conclusion

The conclusion section summarizes the key findings, implications, and recommendations discussed throughout the study. It highlights the importance of embracing technological advancements in the transportation industry and acknowledges the potential of e-hailing applications to revolutionize the taxi service sector. The conclusion emphasizes the significance of addressing the concerns and barriers faced by taxi drivers in adopting e-hailing apps. It reinforces the need for collaborative efforts between relevant stakeholders, such as government bodies, taxi associations, and e-hailing service providers, to create an enabling environment that supports and encourages the widespread adoption of these technologies. Furthermore, the conclusion may touch upon the broader implications of e-hailing services, such as their potential to enhance urban mobility, reduce traffic congestion, and improve the overall efficiency of transportation systems. Ultimately, the conclusion reiterates the value of the study's findings and recommendations in guiding the future development and implementation of e-hailing services for taxi drivers, with the goal of improving their livelihoods, enhancing customer experience, and advancing the transportation industry as a whole.

## 5.0 Acknowledgement

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Minimum of 10 references required.

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