December 19 (Vol. 3) (Issue. 1)

JARIMS
JOURNAL OF ADVANCED RESEARCH IN BUSINESS, MARKETING, AND SUPPLY CHAIN MANAGEMENT

Available online at www.jarims.aibma.org

JOURNAL OF ADVANCED RESEARCH IN BUSINESS, MARKETING, AND SUPPLY CHAIN MANAGEMENT

Journal homepage: www.jarims.aibma.org

Determinants of Intention to Use E-Hailing Application among Generation X Consumers in Malaysia

Khor Saw Chin[1], Oh Yit Leng[2], Peter A/L Yacob[3]

[1]Faculty of Business and Finance, Universiti Tunku Abdul Rahman (sckhor@utar.edu.my)
[2]Faculty of Business, Multimedia University (yloh@mmu.edu.my)
[3]Faculty of Business and Finance, Universiti Tunku Abdul Rahman (petery@utar.edu.my)

ARTICLE INFO

Article history:
Received in revised form:
July, 2019
Accepted: December, 2019

Keywords:
E-haling; E-hailing Application; Generation X; Technological Acceptance Model; Theory of Planned Behavior

ABSTRACT

E-haling service is one of the emerging businesses that grow rapidly in Malaysia. In that context, even though e-haling services are becoming more common in Malaysia, the usage rate of e-hailing services among generation X is relatively low. Compared to the baby boomers generation, generation X are more educated and have a higher disposable income. This study aims to examine the determinants of the intention to use e-hailing applications by proposing a framework grounded from several theories. In technological acceptance and behaviour paradigm, this study raises several issues that are the possibility of Technological Acceptance Model (TAM) and Theory of Planned Behavior (TPB) could be well-explained in the context of e-haling service. The proposed conceptual model is expected to contribute to an understanding for the scholar, policymakers, and practitioners on how generation X formulate their intention to use e-haling application. To the best of the authors' knowledge, limited studies have integrated TAM and TPB on the adoption of E-haling application among generation X. The focus of the level of specificity of constructs measured in this particular study setting adds a contribution to literature and having a more inclusive view in e-hailing service highlighting the conceptual value of this study.

1 INTRODUCTION

The proliferation of smartphones and technology in this era, smartphone-based applications are experiencing fast growth globally. Smartphone-based applications such as e-hailing certainly have a massive impact on the daily life of a community, particularly in providing better services and convenient but lower fares rides. E-hailing is also known as ridesharing, ride-hailing, ride-sourcing, Transportation Network Companies (TNCs), and on-demand ride services. It refers to transportation service where passengers electronically hail a vehicle for a ride through an application on a smartphone. Drivers usually use their own vehicles and the system is typically managed by e-hailing companies (Vivoda et al., 2018). In Malaysia, the e-hailing industry is dominated by Grab.

Nevertheless, to date, there are at least 40 companies listed in the Land Public Transport Agency (*Agensi Pengangkutan Awam Darat*, APAD) along with their respective mobile applications for customers to book rides (Land Public Transport Agency, 2019). Due to the stiff

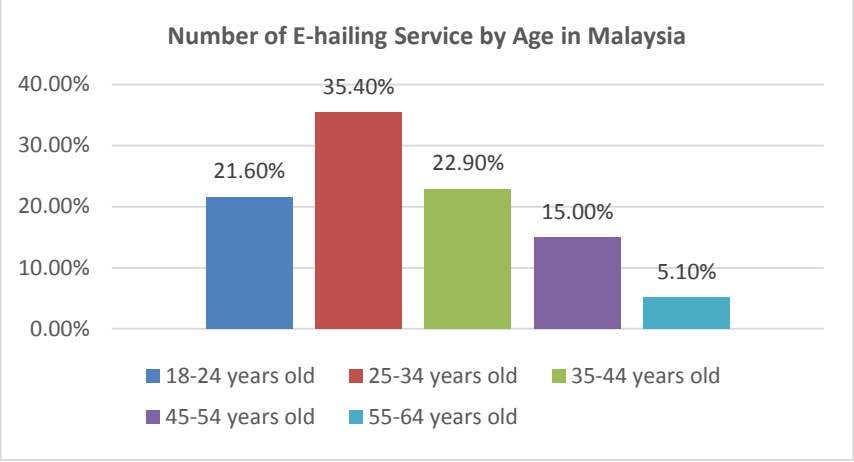
Corresponding author: Khor Saw Chin[1]
E-mail address: sckhor@utar.edu.my
Affiliation: Faculty of Business and Finance, Universiti Tunku Abdul Rahman

http://dyy.doi.org/10.10518/j.jarims.2019.10.075

competition, it is unlikely for e-haling companies to be sustainable in the long run. Hence, critical performance factors must be understood for e-haling companies to remain competitive and sustainable.

Nielsen (2014) revealed that millennials (Generation Y) are most likely to engage in ride-hailing. This result is in line with Alemi et al. (2019) who have statistically proved that there is a difference in the adoption and frequency of use e-haling between millennials and generation X. They reported that millennials tend to adopt e-hailing service more frequently while the e-hailing usage frequency among generation X was lower. This finding is logical because of attributes of millennials about their familiarity and comfort with the use of new technologies. Specifically, in Malaysia, generation X and baby boomers are reported low usage rate of e-hailing services (Lee, 2016). A research done by APAD indicated that adults age 18 to 24 are the majority of using e-hailing services (Todd et al., 2018). According to Statista (2019), individuals who were 25-34 years old in 2017 are more likely to adopt e-hailing service, yield 35.4 percent of the number of users of e-hailing services in Malaysia. Generation X is reported relatively lower usage rate of E-hailing service by age in Malaysia.

Figure 1
Number of e-hailing service by age in Malaysia



Source: Statista (2019)

Generation X is a group of middle-aged adults born between 1965 and 1980 (Circella et al., 2018). It is the predominant population with high purchasing power. Compared to the baby boomers generation, generation X are more educated and have a higher disposable income (Selingo, 2015). Generation X is said to be the generation who live in the digital era but a 'non-technology savvy' individual. They have the lower Technology Readiness Index (TRI) compared to the younger generation.

The level of awareness and adoption of e-hailing service vary by generation. Circella et al. (2018) indicate that the level of awareness and use of e-hailing among generation X is lower than millennials. The responses of poor adoption rate, especially among generation X, brings to a doubt that driven the scholars to research the consumer behaviour concerning e-hailing service in the context of Malaysia. Hence, this study aims to answer the following research question: what are the determinants of intention to use e-hailing application among generation X consumers in Malaysia?

To the best knowledge of the researcher, this is the first study that integrates TAM and TPB to examine the determinants of intention to use e-hailing application among generation X consumers in Malaysia. Both TAM and TPB have their advantages and shortcoming and thus, the integration of these theories provides a useful and robust composite perspective on the issue of technology acceptance.

On the research front, this study contributes to the growing body of knowledge on the e-hailing service by revealing the effects of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Subjective Norms (SN) and Perceived Behavioural Control (PBC) on use intention to use e-hailing application among consumers, specifically generation X. On the practical front, it offers practitioners insights into promoting passengers' participation in the e-hailing services.

2 LITERATURE REVIEW

In examining determinants affecting the use intention of the e-hailing applications, this study relies on the combination of the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB). TAM recognises the key determinants that affect the acceptance of an innovation/technology (Davis & Venkatesh, 1996). It is a simple model to predict technology usage while TPB is known to be useful and has more effect in better understanding and explaining the behavioural intention in some circumstances (Mathieson et al., 2001). Both theories have its advantages and shortcoming. Based on this premise, this paper reviews these two prevalent theories and integrates them in investigating the determinants of use intention of e-hailing applications.

Technology Acceptance Model (TAM)

Davis (1989) introduces TAM to explain the intention of users to accept advance technology. TAM was adapted from the Theory of Reasoned Action (TRA) formulated by Fishbein and Ajzen (1975). TRA is a common theory of human behaviour, and TAM is specific to information system usage (Mathieson et al., 2001). TAM points out that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) represented the beliefs that lead to IT acceptance. TAM aims to predict the acceptance of information system and diagnose design problems before users have experience with a system. TAM is the most generally applied model of technology acceptance and usage and receiving considerable empirical support.

Nevertheless, TAM is open to criticism, mainly for not taking into account other fundamental theories to better explain the acceptance of an individual towards an innovation/technology. The fundamental constructs of TAM do not entirely reflect the peculiarities of each technology as well as do not include the particular impacts of technological and usage-context factors (Orlikowski & Iacono, 2001; Wang et al., 2006). Therefore, it is vital to discover if theories that explain well in one context or environment will be as effective in other contexts.

Additionally, prior studies found that TAM overlooks variables which possible alter users' acceptance towards technology. Taylor and Todd (1995) and Wang et al. (2006) pointed out that TAM does not consider the impact of social and control aspects on behaviour that has altered user acceptance. The omission variables that might be pivotal predictors of technology acceptance have led to the TAM to explain at most 40% of the variation in IT usage (Legris et al., 2003; Taylor & Todd, 1995).

Theory of Planned Behaviour (TPB)

TPB is originated from the TRA that was introduced by Ajzen in 1991. Both TRA and TPB consider one's intentions as the motivational factors that affect behaviour (Ajzen, 1991). Meaning to say, the stronger the intention of an individual to engage in a behaviour, the more likely he or she will translate into action. Hence, the intention is a good driver of action. TPB has enhanced the original TRA model by including perceived behavioural control as another factor affecting an individual's intention as well as actual behaviour. Ajzen (1991) stressed that one's ability to control over performing a behaviour is, to some extent, affecting their intention to or not to show a particular behaviour.

TPB is recognised as a theory with the most influential in determining human behaviour in wide scope. TPB alone might be no enough to explain the intention to act (or not to act) in the context of E-hailing application as it is not specific to technology usage. Furthermore, TPB is less parsimonious than TAM, and it requires unique operationalisations in a diverse situation in which it is applied (Mathieson et al., 2001).

In contrast to TAM, TPB consists of constructs that exist in TAM. Subjective Norms (SN) and Perceived Behavioural Control (PBC) of TPB and TAM's constructs have a very minimal overlap (Mathieson et al., 2001). In order to keep the underlying ease of TAM while enhancing its ability to determine technology usage, this study has integrated TAM and TPB to provide a complete study of the important determinates of use intention toward E-hailing application. Based on this premise, this study includes Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Subjective Norms (SN) and Perceived Behavioral Control (PBC) as determinants of use intention towards E-hailing among generation X.

Perceived Usefulness

Perceived Usefulness (PU) refers to the extent to which users believe that utilising a specific system would enhance his or her outcome (Davis, 1989). Lin and Chen (2012) stated that people adopt new information technology when they believe it is more useful, i.e. improving efficiency and effectiveness. In the context of e-hailing, generation X may use the e-hailing service if it is perceived to increase performance such as increasing ride efficiency and creating a worry-free riding environment.

Rayle et al. (2016) found that, from the perspective of users, e-hailing's short wait times, consistency across time and location as well as quick and reliable response a significant difference between e-hailing and traditional cab services. Advanced digital platform connects drivers and passengers, coordinating its acquisition and distribution and leading the e-hailing service to a more significant scale (Lee et al., 2018). In a similar vein, Weng et al. (2017) reported that users see the e-hailing application as a valuable tool for riding a taxi effortlessly and quickly with a cheaper rate motive them to use the application. Subsequently, this study hypothesises that:

H1: Perceived usefulness has a positive influence on the intention to use E-hailing application among generation X.

Perceived Ease of Use

Perceived Ease of Use (PEOU) is defined as the extent to which a user believes that utilising a specific system would be effortless (Davis, 1989). In the e-hailing context, PEOU refers to the users' request for a ride by using a mobile phone without errors, and its functions are instinctively understandable. Most importantly, the amount of effort is in proportionate relation to the usage (Sonneberg et al., 2019). PEOU play a significant role in understanding how consumers perceived the notion of adopting the E-hailing application (Min et al., 2019).

The basic functions of most of the E-hailing application appear simple to use for technology-savvy users. However, it is not easy for everyone, especially generation X, who are 'non-technology savvy' and might not appreciate the innovative features. Min et al. (2019) revealed that complexity of an e-hailing would be a potential irritation to make users feel that it is difficult to use and they prefer to hail a taxi by street or through a phone call. Whereas, Sakunlertvattana (2016) delineated that simple and accessible site navigation and high-speed load time of e-hailing application provide convenience for the users. Therefore, this study hypothesises that:

H2: Perceived ease of use has a positive influence on the intention to use E-hailing application among generation X.

Subjective Norm

Subjective Norm (SN) is a social factor; it refers to the perceived social force and shared beliefs of a particular reference group to act (or not to act) a specific behaviour (Ajzen, 1985, 1991). As proposed in Maslow's hierarchy of needs, the human being has needs of love and belongingness (Maslow, 1943). Human beings appraise the importance of being accepted as part of a group or community. Hence, it is not a surprise that one's decisions or actions affected by the view or opinion of the others. An individual's willingness to act in certain behaviour will be greater if he or she believes that those they think important (such as family members, peers, colleagues, other connections) think they should perform a particular behaviour.

In the E-hailing context, SN refers to consumers are involved in a social system of those they think important, who are using an e-hailing application, will affect consumers' decisions and behaviours toward adoption of the e-hailing application. According to Young (2009), consumers see and learn innovation from people who are using it and evaluate and decide whether the system is worth utilising. Weng et al. (2017) confirmed that consumers decide to adopt the e-hailing application of their reference group is using and recommending it to them. Consumers will find the e-haling application as a safe way of taking taxis if those they think important have positive views on adopting the application. Hence, this study hypothesises that:

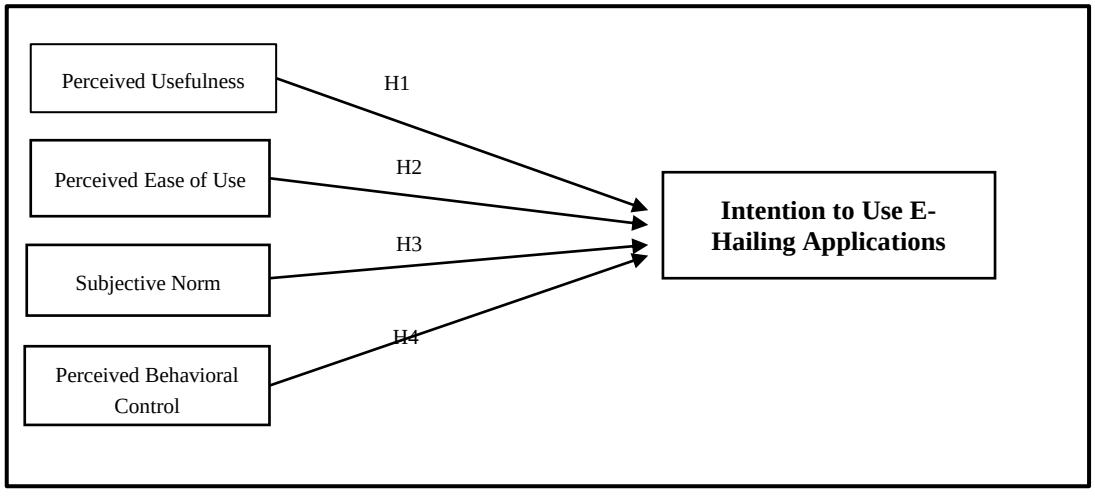
H3: Subjective norm has a positive influence on the intention to use E-hailing application among generation X.

Perceived Behavioural Control

Control beliefs offer the foundation for perceptions of behavioural control (Ajzen, 1991). Perceived Behavioural Control (PBC) is defined as the individual's perception of ease or difficulty to complete a specific action (Ajzen & Fishbein, 2000). Behavioural control raised when people think that they contain more resources and confidence than expected obstacles (Ajzen, 1985), and hence it denotes a person's perception of control over a certain behaviour. Resources could be money, time, knowledge, personal skills, and dependence on others (Ajzen, 1985). The perception of behavioural control of an individual is directly associated with his or her intention to perform such behaviour.

According to Fleischer and Wahlin (2016), the availability of e-hailing services and required resources such as a smartphone, knowledge and skills to adopt the e-hailing application, can affect consumers' intention to use the service. Consumers neither possess these resources nor have the chance to utilise the e-hailing services would have a negative intention to utilise the application.

Figure 1
Conceptual Framework



Similarly, Giang et al. (2017) indicated that if consumers believe that the process of using e-hailing applications is within their control and they are also in a need to use e-hailing application, therefore they are likely to adopt the application. Thus, this study hypothesises that:

H3: Perceived behavioural control has a positive influence on the intention to use E-hailing application among generation X.

Based on the extensive review of the literature discussed above, a conceptual framework is developed, as presented in Figure 1.

DISCUSSION AND CONCLUSION

Utilising TAM and TPB as the fundamental theories, this paper investigates the determinants that affect the adoption of the E-hailing application by Generation X. The proposed conceptual framework is expected to contribute to an understanding for the scholar, policymakers, and practitioners on how generation X formulate their intention to use e-haling application. Generation X is still at the infancy stage of using mobile applications and not acquainted with the technology. As such, E-hailing application acceptance may vary depending on the characteristics of Generation X, specifically their adoption perceptions and behaviours. To the knowledge of the researcher, this is the first study that integrates TAM and TPB to examine the determinants affecting acceptance of the E-hailing application among Generation X.

The integration of TAM and TPB provides a useful and robust composite perspective on the issue of technology acceptance. These theoretical approaches have provided an important contribution to the Management Information System (MIS) research stream, and additional studies have been attempting to build on the existing body of knowledge in this area.

The focus of the level of specificity of constructs measured in this particular study setting adds a contribution to literature and having more inclusive view in e-hailing service by highlighting the conceptual value of this study. In conclusion, this study provides practitioners insights into major determinants of passengers' intention to use of e-hailing service in Malaysia.

REFERENCES

Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. In Action control (pp.11-39). Springer, Berlin, Heidelberg.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211.

Ajzen, I., & Fishbein, M. (2000). Attitudes and the attitude-behavior relation: Reasoned and automatic processes. *European Review of Social Psychology, 11*(1), 1–33.

Alemi, F., Circella, G., Mokhtarian, P., & Handy, S. (2019). What drives the use of ridehailing in California? Ordered probit models of the usage frequency of Uber and Lyft. *Transportation Research Part C, 102*, 233-248.

Circella, G., Alemi, F., Tiedman, K., Handy, S., & Mokhtarian, P. L. (2018). *The adoption of shared mobility in California and its relationship with other components of travel behavior*. Retrieved from https://merritt.cdlib.org/d/ark:%252F13030%252Fm5zm0cxx/1/producer%252FNCST-RR-201802.pdf

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of Information Technology. *MIS Quarterly, 13*(3), 319-339.

Davis, F. & Venkatesh, V. (1996). A critical assessment of potential measurement biases in the technology acceptance model: three experiments. *International Journal Human-Computer Studies, 45*, 19-45

Fishbein, M., and Ajzen, I. (1975). Belief, Attitude, Intention and Behavior." An Introduction to Theory and Research, Reading, MA: Addison-Wesley.

Fleischer, A. & Wåhlin, C. (2016). Want to take a ride with me? The intention of generation Y to use Uber. Retrieved from http://www.diva-portal.org/smash/get/diva2:934805/FULLTEXT01.pdf

Giang, P.T., Trang, P.T., & Yen, V.T. (2017). An Examination of Factors Influencing the Intention to Adopt Ride-Sharing Applications: A Case Study in Vietnam. *Imperial Journal of Interdisciplinary Research (IJIR), 3*(10), 618-623.

Land Public Transport Agency. (2019). *Syarikat E-hailing Lulus Beroperasi.* Retrieved from http://www.apad.gov.my/en/pengangkutan-awam-darat/teksi/syarikat-e-hailing-lulus-beroperasi-terkini

Lee, C. (2016). To Uberize or Not to Uberize? Opportunities and Challenges in Southeast Asia's Sharing Economy. *ISEAS Perspective, 2016*(33), 1-17.

Lee, Z. W. Y., Chan, T. K. H., Balaji, M. S., & Chong, A. Y. L. (2018), Why people participate in the sharing economy: an empirical investigation of Uber, Internet Research, 28(3), 829-850.

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management, 40*(3), 191-204.

Lin, A., & Chen, N.-C. (2012). Cloud computing as an innovation: Perception, attitude, and adoption. *International Journal of Information Management, 32*(6), 533–540.

Mathieson, K., Peacock, E., & Chin, W. W. (2001). Extending the technology acceptance model: the influence of perceived user resources. ACM SIGMIS Database, 32(3), 86–112.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370-396.

Min, S., So, K.K.F. and Jeong, M. (2019). Consumer adoption of the Uber mobile application: Insights from diffusion of innovation theory and technology acceptance model. *Journal of Travel & Tourism Marketing, 36*(7), 770-783. Nielsen. (2014). *Is Sharing the New Buying?* Retrieved from http://www.nielsen.com/content/dam/nielsenglobal/apac/docs/reports/2014/Nielsen-Global-Share-Community-Report.pdf

Orlikowski, W.J., & Iacono, S. (2001). Research Commentary: Desperately Seeking the "IT" in IT Research - A Call to Theorizing the IT Artifact. *Information Systems Research, 12*(2), 121-134.

Rayle, L., Dai, D., Chan, N., Cervero, R. & Shaheen, S. (2016). Just a better taxi? A survey-based comparison of taxis, transit, and ridesourcing services in San Francisco. *Transport Policy, 45*, 168-178.

Sakunlertvattana, W. (2016). *Factors Influencing Consumer Brand Choice of Top 3 Taxi Booking Mobile Applications in Bangkok: Uber, GrabTaxi and Easy Taxi.* Retrieved from http://dspace.bu.ac.th/bitstream/123456789/1971/1/Watchareebhorn_saku.pdf

Selingo, J.J. (2015, November 12). Baby boomers and the end of higher education. https://www.washingtonpost.com/news/grade-point/wp/2015/11/12/baby-boomers-and-the-end-of-higher-education/

Sonneberg, M.-O., Werth, O., Leyerer, M., Wille, W., Jarlik, M. & Breitner, M. H. (2019). *An Empirical Study of Customers' Behavioral Intention to Use Ridepooling Services -An Extension of the Technology Acceptance Model.* 14th International Conference on Wirtschaftsinformatik, Siegen, Germany, 24-27 February 2019.

Statista. (2019). *Ride Hailing Malaysia*. Retrieved from https://www.statista.com/outlook/368/122/ride-hailing/malaysia#market-revenue

Taylor, S., & Todd, P. (1995). Assessing IT Usage: The Role of Prior Experience. *MIS Quarterly, 19*(4), 561-570.

Todd, L., Amirullah, A., & Xing, C. H. (2018). E-hailing regulations: striking the right balance. *Policy Ideas (57).* Retrieved from http://www.ideas.org.my/policy-paper-no-57-e-hailing-regulations-striking-the-right-balance/

Vivoda, J. M., Harmon, A. C., Babulal, G. M., & Zikmund-Fisher, B. J. (2018). E-hail (rideshare) knowledge, use, reliance, and future expectations among older adults. *Transportation Research Part F Traffic Psychology and Behaviour. 55*, 426-434.

Wang, Y. S., Lin, H. H., & Luarn, P. (2006). Predicting consumer intention to use mobile service. *Information Systems Journal, 16*(2), 157-179.

Weng, G. S., Zailani, S., Iranmanesh, M. & Hyun, S. S. (2017). Mobile taxi booking application service's continuance usage intention by users. *Transportation Research Part D Transport and Environment*, *57*, 207-216.

Young, H. P. (2009). Innovation diffusion in heterogeneous populations: Contagion, social influence, and social learning. *American Economic Review*, *99*(5), 1899–1924.