Investigating the Mobility of Touch N Go Smart Cards in Malaysia with the TAM Model

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Abstract - **The purpose of this study is to analyze how consumers' expectations of the convenience and utility of Touch N Go Smart Cards affect their likelihood of adopting this payment option. The study's overarching goal is to learn how these two variables impact riders' decisions to carry Touch N Go Smart Cards for transit and other purchases. The Technological Acceptance Model will serve as the quantitative framework for our exploration of Touch N Go Smart Card use in Malaysia (TAM). Information is gathered using an online, pre-designed survey form. Participants were gathered from all throughout Malaysia using a convenience sampling strategy. All participants had to be over the age of 18 and have used a Touch N Go Smart Card to pay for transportation or a service at least once. A sample size of at least 450 participants is targeted to ensure adequate representation across different age, gender, and demographic groups. The data are gathered using a closed-ended online poll. Participants were asked to take part in the survey by email, social media, and discussion boards, and the poll itself is done using a reputable online survey platform.**

Keywords - **technology, digital application, management, business.**

1. Introduction

Mobility market giants like Uber, Grab, and Lyft have been at the vanguard of the move away from cash transactions that has been occurring on a worldwide scale over the past few years. These businesses have been pioneers in the movement away from a reliance on cash by offering cutting-edge features and tools that make making and receiving payments more streamlined and straightforward. For instance, Uber introduced its cashless payment system in 2016, enabling users to pay for rides using credit or debit cards, or digital wallets like PayPal or Apple Pay. The corporation made the change to accommodate the rising preference for cashless transactions and enhance the convenience it offers to its customers. Just like Uber, Grab, the most popular ride-hailing app in Southeast Asia, has been planning for a cashless future from the start. In 2016, Grab introduced its GrabPay digital wallet, which eliminated the need for customers to carry cash while paying for rides, food deliveries, and other services on the site. Grab has collaborated with regional governments and companies to push for cashless payments and expand access to banking services. Similar efforts have been made, another major US ride-hailing firm, to move towards a cashless society. In 2020, the firm implemented a change that would allow customers to round up their total using a credit or debit card rather of cash when tipping their driver [9]. The modification was made to eliminate the need for riders to carry large amounts of cash and make tipping easier and safer [10]. These pioneers in mobility are not stopping with the auto industry. Several of these businesses now provide cashless transactions and digital payments in adjacent markets, such as the food and grocery delivery sectors and online retail.

According to the Malaysian scenario, the country has recently experienced a surge in cashless transactions thanks to the efforts of mobility leaders like Grab, which have been blazing the trail for a cashless society by introducing innovative technologies and features to make online and in-app purchases more straightforward and secure.

The Malaysian branch of Grab, the largest ride-hailing network in Southeast Asia, has been a leader in the movement to eliminate the need for cash. GrabPay, the company's digital wallet, was introduced in Malaysia in 2018, making it possible for customers to pay for rides, food delivery, and other services on the platform without using cash. The business predicts a 150% rise in GrabPay usage in Malaysia in 2020 due to the growing popularity of the service. Grab has been working with the government and private sector in Malaysia to increase the prevalence of cashless transactions, in addition to promoting its own digital wallet. As of this year, the firm has worked with the government of Malaysia to accept the GrabPay e-wallet for public transit charges, such as those on trains and buses. The change was made to make the public transportation system in Malaysia more efficient by decreasing the reliance on cash payments. In addition to its original focus on transportation, Grab has branched out into other markets, including grocery delivery, online shopping, and meal delivery, all of which it serves as a platform to advocate for cashless transactions and digital payments. The firm introduced, a platform that enables small companies to accept cashless payments using the GrabPay wallet, with the goal of promoting financial inclusion and decreasing dependency on cash transactions [6]. In general, Grab has been instrumental in advancing the use of electronic payment methods in Malaysia. Its cutting-edge technology and strategic alliances have boosted economy security, broadened access to banking services, and enhanced the user experience [4].

The Touch'n Go card is one of the most extensively utilised alternatives to using cash for purchases in Malaysia. First established in 1997 as an electronic toll collection system, the card is now accepted for payment of fare on public transit, parking fees, and retail sales. A contactless smart card, the Touch 'n Go card enables payments with just a tap on a reader. To make a purchase, the money is deducted from the card's balance, which may be added to at numerous locations such convenience shops, gas stations, and internet portals [5]. With over 23 million Touch 'n Go cards in circulation by the year 2021, the card has quickly become the de facto means of payment in Malaysia. Also, the RapidKL bus system and the KTM Komuter rail service now accept the card, expanding its usefulness to commuters. The Touch 'n Go card has also played a significant role in lowering the prevalence of cash transactions and expanding access to banking services in Malaysia, hence contributing to the development of a cashless society. Many foreign visitors to Malaysia have opted to use this method of payment since it removes the need to carry cash and facilitates purchases at a wide variety of stores and transportation providers.

Touch 'n Go CEO Syahrunizam Samsudin said the firm is always working to give consumers with more streamlined and protected payment methods by establishing new partnerships and enhancing existing ones. Moreover, he reaffirmed the firm's dedication to improving the customer service experience and advancing the cashless society. With the introduction of the Touch 'n Go card, Malaysia has taken a giant step towards becoming a cashless society. Its success has cleared the door for additional cashless payment options to flourish in Malaysia, and its ease of use, safety, and widespread acceptance have made it a favourite among both locals and visitors.

2. Observation of Touch n Go Emerging Strategies in Malaysia

For more than two decades, Touch 'n Go has dominated the cashless transaction industry in Malaysia, and the firm has continually adapted to meet the needs of its customers. To maintain its lead in the Malaysian market, Touch 'n Go has recently implemented the following strategies:

• By adding new payment methods beyond smart cards, Touch 'n Go has broadened its customer base and increased its success. These payment methods include smartphone payments, QR code payments, and even internet purchases. This has simplified the payment procedure for customers, and the business is always looking into new payment methods to better serve its clientele. To facilitate cashless transactions and expand payment choices for online shoppers, Touch 'n Go has partnered with major e-commerce sites including Lazada and Shopee. For the company's future in the digital market, this is a major development.

• Touch 'n Go has gone global, forming alliances with payment processors in countries like Singapore, Thailand, and Indonesia, in addition to its original home market of Malaysia. The business has been able to expand into new areas and reach more customers because of the success of these new payment methods. Adding additional services, such as e-wallet top-ups, bill payments, and even the option to buy cinema tickets using the Touch 'n Go payment system. These new additions have allowed Touch 'n Go to broaden its services and provide customers with more ways to pay.

Touch 'n Go has linked its payment systems with Grab and Food panda, among others. Because of this, the company's position in the mobile app market has grown, and customers may now use their Touch 'n Go e-wallet to pay for these services. Touch 'n Go is continuing to take several measures to ensure that it remains the undisputed leader in the cashless payments sector in Malaysia.

The company's efforts to innovate and collaborate with other service providers are improving the customer service experience and fostering the growth of a cashless economy in Malaysia.

3. Review of Literature

To comprehend how people take to new technologies, the Technological Acceptance Model (TAM) is commonly employed. Users' attitudes and intentions to use a technology are predicted to be influenced by two key aspects, the model suggests: the perceived utility of the technology and the perceived ease of using it. The TAM model is beneficial for understanding how people feel about the convenience and efficiency of Touch 'n Go cards. Researchers from University Teknologi MARA in Malaysia utilised the TAM model to assess riders' perceptions of and interest in Touch 'n Go card payments for public transit.

Users rated Touch 'n Go cards highly for their usefulness in the research, especially in terms of saving time and not having to carry cash everywhere. As the technology behind Touch 'n Go cards is intuitive and the payment procedure is simple, people have a positive impression of how simple it is to use them. The study found that users' perceptions of the Touch 'n Go card's utility and simplicity of use were strong predictors of their sentiments about the card and their desire to use it to pay for public transit. Another study by University Teknologi Malaysia students and faculty investigated the connection between the TAM model and the popularity of the Touch 'n Go electronic wallet. Users' views towards Touch 'n Go e-wallet were found to be significantly predicted by their perceptions of the technology's utility and convenience of use, which in turn affected users' intentions to use the technology.

Users' opinions of Touch 'n Go e-wallet were shown to be significantly impacted by their level of confidence in the system and their perception of its security. The need to guarantee the safety and dependability of the technology to boost user confidence and uptake is highlighted. These studies show that the TAM model is helpful in deducing consumers' mental models of Touch 'n Go cards and electronic wallets, as well as their propensity to utilise them. Touch 'n Go can enhance its products and boost acceptance of its payment solutions by listening to customers' feedback on the technology's usefulness and convenience of use.

For many years, researchers in the fields of information systems and technology have relied on a framework called the Technology Acceptance Model (TAM) to better understand and foresee how consumers would respond to and embrace new technologies.

According to the paradigm, user attitudes and intentions to use a technology are shaped by two key factors: the perceived utility of the technology and the perceived ease of using it. The perceived utility of a technology is how the user thinks it will improve their efficiency or effectiveness; while the perceived ease of use is how simple they think it will be to put into practise. The Technology Acceptance Model (TAM) postulates that a technology will have a higher rate of uptake if its users find it to be both helpful and straightforward to operate.

Many studies have shown that the TAM model is a reliable method for forecasting how people will respond to and make use of new technologies. Experiments that fit the TAM model are illustrated by the following. E-learning: Al-Fraihat [1] used the TAM model to assess how well students adopted and made use of online education tools. Students' opinions and plans about the employment of e-learning systems were shown to be strongly impacted by their perceptions of the systems' utility and their usability.

Buying Something Over the Internet:

The TAM model was used in a 2013 study by [14] to look at the rise of e-commerce in Pakistan. Users' views regarding online purchasing were shown to be heavily impacted by their perceptions of the technology's utility, convenience of use, and legitimacy, as well as their intentions to use the technology. Research by [8] used the TAM model to assess the level of user acceptability and adoption of mobile banking in China. The study indicated that consumers' opinions regarding mobile banking were highly impacted by their perceptions of the technology's utility, convenience of use, and security.

The TAM model was used to examine consumers' adoption of social media in research by Bhattacharjee and Sanford [3] in 2006. Users' views about social media, and therefore their desire to use the technology, were shown to be highly impacted by users' perceptions of the platform's utility, simplicity of use, and the prevalence of usage, according to the study. The TAM model has been validated as a valuable framework for elucidating the factors that influence people's attitudes about and actual usage of technological solutions. The TAM model is a useful tool for gaining insights into how to create and market technology that is more likely to be adopted and used by its target audience by analyzing user feedback on the utility and simplicity of use of that technology.

Survey instrument: Questions on the perceived utility, perceived ease of use, intention to use, and actual use of Touch N Go Smart Cards are included in the survey questionnaire that is designed using the TAM model. Age, gender, ethnicity, and degree of education are also recorded.

Data analysis: Frequency analysis, mean score, standard deviation, correlation, regression, and discriminant validity are among the descriptive and inferential statistics used to examine the data. SPSS is used to examine the study's data.

Ethical considerations: Participants' privacy and confidentiality are always protected during this study. Before any data is collected, participants are made aware of the study's goals and asked for their consent. The study also followed the rules and regulations set out by the appropriate research ethics committee.

Limitations: Convenience sampling might be a weakness in this study's ability to generalize to the community at large. The study also uses self-reported information, which might be impacted by response bias. Limitations are mitigated as much as possible by collecting data from a sizable and representative sample and employing tried-and-true survey methods.

4. Hypothesis Development

H1: Perceived usefulness and perceived ease of use positively influence users' intention to use Touch n Go cards for cashless transactions in Malaysia.

Earlier research on mobile payment systems and smart card systems lends credence to this theory. Researchers in Taiwan discovered that smart card users were more likely to have positive attitudes about the technology if they believed it would be easy to learn and use. The perceived usefulness and simplicity of use were also important predictors of customers' intentions to utilise mobile payment services in a study conducted in Taiwan. Whilst the TAM model has been widely used, its transferability to non-Western settings has been questioned in several academic works. It has been observed that the TAM model does not entirely explain customers' desire to use mobile payment services in China, according to research conducted by [15]. This suggests that other elements, such as social influence and perceived risk, may also be essential in this setting. Considering this, while H1 is a fair hypothesis based on prior research, it may be important to consider additional variables and contextual distinctions to have a complete understanding of Touch n Go usage in Malaysia.

Trust, social influence, and perceived risk were all found to be important determinants of customers' intentions to utilise mobile payment systems in a study conducted in Malaysia.

H2: The increasing availability and ease of use of cashless payment systems positively influence consumers' adoption of cashless payment options.

Many studies, including a report by the World Bank (2018), find that the proliferation of mobile payments and other cashless payment methods has the potential to boost financial inclusion, reduce transaction costs, and increase economic efficiency. Similarly, a KPMG (2018) survey indicated that customers in developed nations are choosing cashless payment methods due to the simplicity and security of such transactions. It is worth noting, though, that barriers to the widespread use of cashless transactions, such as scepticism against financial institutions, a lack of reliable digital infrastructure in some areas, and the potential for unauthorised access, exist. As a result, it may be necessary to establish new theories that account for these considerations to fully grasp the appeal of cashless transactions.

H3: Trust in financial institutions and perceptions of security and privacy influence consumers' adoption of cashless payment options. Research backs up this theory by showing that worries about data security are hindering mobile payment growth in several locations. Meanwhile, [7] discovered that customers' trust in financial institutions was a major predictor of their likelihood to use mobile payments in South Korea. These theories together imply that many factors relating to ease of use, safety, trust, and availability of digital infrastructure are likely to affect the spread of cashless payment methods.

H4: The increasing prevalence and convenience of smart devices positively influence consumers' use of mobile devices for online transactions.

Many studies, like one by [5], corroborate this concept by showing that more and more people are making purchases online using their mobile devices because of its portability, speed, and the proliferation of mobile-friendly websites and applications. Research also indicated that the global mobile payment user base is expected to expand in the future years. It is worth noting, however, that there may be factors that discourage the use of smart devices for online transactions, including worries about security and privacy, a lack of access to digital infrastructure, and a lack of trust in financial institutions. As these characteristics may affect the adoption of smart devices for online transactions, it may be necessary to establish new theories.

H5: Trust in financial institutions and perceptions of security and privacy influence consumers' use of smart devices for online transactions.

[7] observed that customers' confidence in financial institutions was a major predictor of their likelihood to utilise mobile payments in South Korea, lending validity to this theory. Concerns regarding security and privacy were also shown to be significant hurdles to the widespread use of mobile payments in China, according to research by [16]. Taking all these predictions into account, it becomes clear that many variables relating to ease of use, safety, trust, and availability of digital infrastructure are likely to affect the extent to which people utilise their smart devices to conduct financial transactions online. Further study is required to fully understand these characteristics and their influence on customer behaviour as the usage of smart devices for online purchases increases.
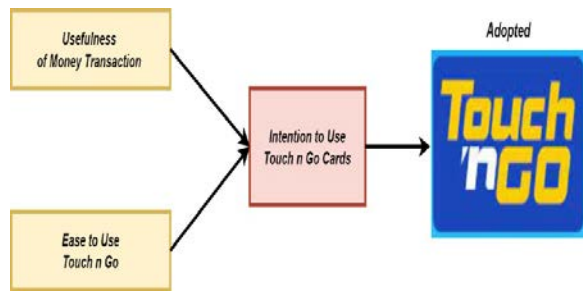

Figure 1. Conceptual Framework using TAM Model

Touch n Go customers in Malaysia may be better understood through the lens of the Technology Acceptance Model (TAM), a theoretical reference framework for assessing the likelihood that people would accept and use novel technologies or methods of conducting financial transactions. A pioneer in the field of technological adoptions, [4] Fred Davis' TAM model has seen widespread application since its introduction in 1986. To determine how well consumers can work with new technology, the TAM model was established. The TAM model is based on the interplay of four factors: user perceptions of the system's usefulness, ease of use, intent to use, and actual system utilisation. According to the findings of this research, the Touch n Go Card has been well accepted by the Malaysian public. Social conventions, the perception of one's own ability to manage one's behaviour, and the quality of the design technology or app itself are all examples of external variables. Values, beliefs, and attitudes are examples of internal influences. The people of Malaysia have found it difficult to adopt and implement the technology in financial transactions due to its high level of risk.

However, the country has had some success with the widespread implementation of new technologies in fields as diverse as healthcare, education, mobile applications, and fast food. More crucially, the government of Malaysia endorses the widespread use of Touch n' go technology at the country's toll gates.

TAM Model, [4] Fred Davis was used to inform the final stages of the conceptual framework's construction (1986). Usefulness of Money Transaction (UMT), Intention to Use (IOU), Ease of Use of Touch N Go Cards (EOU) and Adopted Touch N Go Cards (DV) are the variables included in the study's research design (AT).

5. Research Methodology

Research Design:

This study used a cross-sectional design and quantitative methods to examine how different factors affect individuals in Malaysia's attitudes and usage of Touch N Go cards. This study used a cross-sectional design to gather its data for its explanatory purposes. Hypotheses were tested using partial least square structural equation modelling (PLS-SEM), a causal-predict data analysis method.

Population and Sampling:

People in Malaysia were selected as the focus group for this investigation. G-Power 3.1 was used to determine the necessary sample size, which was 0.95 at power and 0.15 at effect size for a total of four predictors. Sample size was set at 89. [17]. To use PLS-SEM, however, one should have at least 200 samples [6]. With that in mind, 450 participants were surveyed across the major cities of Malaysia (Kuala Lumpur, Penang, Kelantan, Iop, Johor), and the results were analysed using the second-generation statistical analysis method of structural equation modelling.

Table 1. Latent Constructs Correlation

	Usefulness of Money Transaction	Ease to Use	Intention to Use	Adopted (AT)
Usefulness of Money Transaction (UMT)	1.000			
Ease to Use (ETU)	0.259	1.000		
Intention to Use (IOU)	0.290	0.911	1.000	
Adopted (AT)	0.249	0.924	0.944	1.00

Source: Author's data analysis

According to the Table 1, the Latent constructs correlation among the variables are positive and significant with the variables Usefulness of Money transaction (UMT), Ease to Use (ETU), Intention to Use (IOU) and Adopted Touch n Go Card (AT).

Survey Instrument

In this investigation, a well-designed questionnaire served as the survey tool. The questions were adapted somewhat from those used in previous research. James R. Jim Lewis's questions on future intentions to use and adopted Touch n Go (AT) devices; Hussain Mohammad Abu-questions Dalbouh's on the utility of money transactions (UMT) and ease of usage (EOT); (2022). The factors were rated on a five-point Likert Scale (not important, somewhat not important, neutral, slightly important, and extremely important).

Common Method Bias (CMB)

The CMB was evaluated with several different types of methods and statistical tests, which is unusual for cross-sectional research [18]. To evaluate CMB's use as a diagnostic tool, the present research utilised Harma's simple test. Harman's one-factor test found that the single component accounted for 58%, which is over the suggested threshold of 50%, demonstrating the little impact of CMB on this research. However, there was no Link among the study's constructs, as evidenced by the fact that the correlation coefficient for the latent components was under 0.90. [19] Table 1 displays the findings.

Multivariate Normality

Prior to use SmartPLS, it is recommended by Hair et al. (2019) to assess the normality of the multivariate data. Thus, multivariate normality for the study data was verified with the web power online tool. As all the p-values for Mardia's multivariate test were less than 0.05, it was determined that the research data had a problem with normality. To paraphrase (Cain et al., 2017)

Data Analysis Method

Structural Equation Modeling Using Partial Least Squares (PLS-SEM): As the dataset was not normally distributed on many dimensions, PLS-SEM was employed to analyze the data. To investigate the exploratory character and non-normality difficulties in the dependent constructs of the structural equation model, [6] suggests using variance-based structural equation modelling. To examine the information gathered for this investigation, the smart-PLS 3.1 software was used. Multivariate exploratory analysis of the route between integrated latent components is the goal of the PLS-SEM technique [6]. Researchers are given the tools they need to successfully deal with non-normal data, even when working with a limited data set size. In addition, PLS-SEM is a casual-predictive analytic tool for carrying out complicated models with composites, and it makes no static assumption on the goodness-of-fit [19]. The PLS-SEM process consists of two stages.

Model estimation, in which the dependability and validity of the constructs are assessed, is the first stage. In the following stage, we systematically tested the model of the study route and assess its relationships [19]. Changes to the endogenous construct due to the external constructions may be understood by an examination of r2, Q2, and effect size f2. The Logic of an Artificial Neural Network: The input, output, and hidden layers make up ANN analysis, which is a non-compensatory analytical technique [20]. The neurons at each end of the system's input/output graph are connected by the hidden layer. Also, the concealed layer is analogous to the neural circuitry seen in the human brain. The data consists of a training set, a test set, and a hold-out set. The root mean square errors (RMSE) of the training data and the test data are used to calculate the prediction score [20]. A larger dissimilarity between the RSME scores of the training and tested data indicates higher prediction accuracy [8]. To evaluate how much each exogenous variable matters, a sensitivity analysis was conducted. The significance of each external factor reveals how it affects the underlying endogenous structure when normalised [11]. Then, the average synaptic weights helped us figure out how much the input and the hidden layers affected the final output [8].

6. Data Analysis

Table 2. Demographic Profile

Gender	Respondents	Percentage
• Male	279	62
• Female	171	38
Total	450	100
Age		
• 18-25 Years	40	8.9
• 26-30 Years	143	31.8
• 31-35 Years	141	31.3
• 36-40 Years	103	22.9
• Above 40 Years	23	5.1
Total	450	100
Ethnicity		
• Malay	190	42.2
• Chines	142	31.6
• Indian	94	20.9
• Others	24	5.3
Total	450	100
Education		
• Secondary School Certificate	42	9.3
• Diploma Certificate	223	49.6
• Bachelor's degree or Equivalent	77	17.1
• Master's Degree	82	18.2
• Doctoral Degree	26	5.8
Total	450	100

According to the primary data collection from the respondents, the demographic profile is: total number of respondents is 450 in that 62% of the respondents are male and 38% of the respondents are female. According to the age group 8.9% of the respondents are in the age group of 18-25 years, 31.8% of the respondents are in the age group of 26-30 Years, 31.3% of the respondents are in the age group of 31-35 Years, 22.9% of the respondents are in the age group of 36-40, and 5.1% of the respondents are above 40 years. The ethnicity of the respondents are 42.2% of the respondents are Malay, 31.6% respondents are Chinese, 20.9% of the respondents are Indian and other group of respondents are others. The education group of the respondents in 9.3% of the respondents are Secondary school certificate, 49.6% of the respondents are Diploma Certificate, 17.1% of the respondents are Bachelor's degree or Equivalents, 18.2% of the respondents are Master's degree or Equivalents and 5.8% of the respondents are Doctoral Degree. The results are provided in Table 2.

Reliability and Validity

Cronbach's alpha (CA), data-generation reliability (DG) rho, and composite reliability were used to determine and evaluate the reliability of the study's latent constructs [6], (CR). The Cronbach's alpha for every single one of these constructs was over 0.70, with the lowest value being 0.830. Table 3 displays the findings. The smallest value of DG rho among the constructs in this investigation was 0.838, which is significantly higher than the criterion of 0.70. The CR values also above the minimum requirement of 0.70, with the lowest result being 0.880. It is hypothesised from these results that the latent constructs have sufficient reliabilities and will function adequately in further study. For each construct, the AVE has to be greater than 0.50 for all elements within that construct to show sufficient convergent validity. This indicated that the items' convergent validity was sufficient for the constructs (see Table 3). In addition, there was no evidence of multicollinearity because all VIF values were under 3.3 for any construct. In Tables 3 and 4, we can see the item loading and cross-loading results that corroborate the discriminant validity of the constructs. Discriminant validity tests indicated that the study's constructs were valid (see Table 4). We also used the [14] criteria to evaluate the discriminant validity of each concept. The square root of the AVE for a given construct was used to determine whether it met the [18]; to do so, the AVE for the construct in question had to have a larger square root than the correlation among the other constructs in the research [6].

The Heterotrait-Monotrait (HTMT) ratio has been proposed as an alternative discriminant validity test. To prove discriminant validity, the HTMT values have to be below 0.90. [17] Table 4 shows that there is no indication that the study lacks discriminant validity. There is enough discriminant validity between the two constructs, as shown in Tables 4 and 5.

Path Analysis- The study's hypotheses were reviewed after the study model's structure was found to have enough reliabilities and validity. Usefulness of money transactions and ease of using the touch n go app are related in a statistically significant way (P 0.0001), as shown by the adjusted r2 value for the five exogenous variables (i.e., UMT, EOU, IOU, and AT). Respondents' plans to utilise Touch n Go in Malaysia are strongly influenced by the perceived usefulness of money transactions and the convenience of using the cards. The practicality of cashless transactions and the convenience of Touch 'n go cards have a substantial and beneficial effect on the rate at which the people of Malaysia adopt new forms of technology.

Table 3. Reliability and Validity

Var	No.	Mean	SD	CA	DG rho	CR	AVE	VIF
IOU	8	2.53	0.72	0.91	0.93	0.94	0.79	1.00
ETU	5	2.62	0.66	0.93	0.93	0.95	0.78	6.22
UMT	5	3.63	0.71	0.89	0.89	0.93	0.76	6.22
AT	5	3.75	0.73	0.91	0.97	0.94	0.79	-

Source: Author's data analysis

UMT= Usefulness of Money Transaction, IOU = Intention to Use, ETU = Ease to Use, AT= Adopted Touch n Go, SD= Standard Deviation; CA= Cronbach's alpha; DG= rho—Dillon-Goldstein's rho; CR—COMPOSITE reliability; AVE = average variance extracted; VIF= variance inflation Factor's

Table 4. Discriminant Validities

	AT	ETU	IOU	UMT
Fornell-Larcker Criterion				
AT	0.875			
ETU	0.259	0.885		
IOU	0.291	0.871	0.880	
UMT	0.248	0.854	0.873	0.875
HTMT Ratios				
AT				
ETU	0.233			
IOU	0.264	0.864		
UMT	0.225	0.846	0.902	

Source: Author's data analysis

UMT= Usefulness of Money Transaction, IOU = Intention to Use, ETU = Ease to Use, AT= Adopted Touch n Go

Table 5. Loading and Cross Loading

	ADOPTED	EASE	INTENTION	USEFULNESS
AT1	0.762	0.074	0.077	0.047
AT2	0.886	0.202	0.232	0.198
AT3	0.949	0.286	0.337	0.274
AT4	0.917	0.276	0.296	0.276
AT5	0.847	0.090	0.071	0.050
ETU1	0.193	0.857	0.796	0.807
ETU2	0.286	0.900	0.802	0.865
ETU3	0.281	0.900	0.832	0.786
ETU4	0.163	0.885	0.764	0.781
ETU5	0.218	0.880	0.831	0.845
IOU1	0.409	0.800	0.818	0.752
IOU2	0.216	0.785	0.876	0.827
IOU3	0.300	0.809	0.866	0.823
IOU4	0.267	0.819	0.926	0.818
IOU5	0.168	0.781	0.908	0.823
IOU6	0.166	0.778	0.848	0.885
IOU7	0.309	0.877	0.959	0.900
IOU8	0.207	0.759	0.833	0.807
UMT1	0.150	0.854	0.819	0.917
UMT2	0.201	0.842	0.845	0.880
UMT3	0.160	0.737	0.802	0.868
UMT4	0.237	0.803	0.839	0.846
UMT5	0.336	0.803	0.820	0.864

Source: Author's data analysis

UMT= Usefulness of Money Transaction, IOU = Intention to Use, ETU = Ease to Use, AT= Adopted Touch n Go 2. The Italic values in the matrix above are the item loadings, and others are cross-loadings.

Table 6. Path coefficient

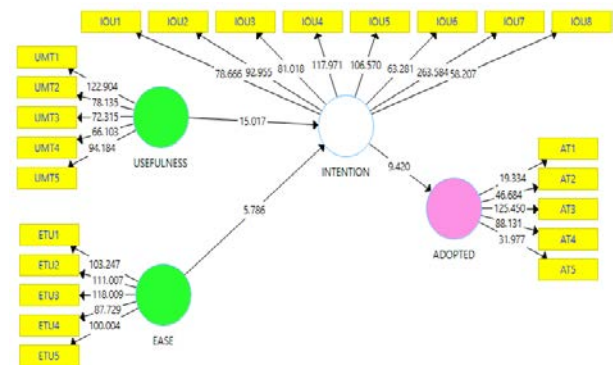| Hypo		T	P	Decisions
H1	UMT->IOU	5.786	0.000	Accept
H2	IOU->AT	9.420	0.000	Accept
H3	ETU->IOT	15.017	0.000	Accept

Figure 2. Conceptual Framewor

The chart shows that the Malaysian respondent found TAM to be an appropriate and acceptable model. Nearly the entire country of Malaysia had adopted the Touch n Go. Across Malaysia, Touch n Go cards are widely recognised and have become a mainstay of the country's monetary infrastructure. Touch n Go cards are accepted on most trains, buses, and taxis in Malaysia, streamlining the country's public transportation system and making it more convenient for commuters. Several toll booths on highways around the country also accept Touch n Go cards, which eliminates the need to carry cash. Touch n Go cards may be used not just for public transit, but also at many other types of retailers and restaurants. As a result, many people in Malaysia choose to use Touch n Go cards rather than carry around large amounts of cash. Touch n Go cards are widely accepted in Malaysia, making them a popular alternative for customers seeking a quick and simple method of payment. There's a good chance that Touch n Go cards will continue to gain popularity as the country moves towards more widespread adoption of digital payment systems.

7. Discussion

Theoretical Contribution:

Consumers' propensity to accept cashless payment systems like Touch n Go cards is influenced by several variables, including the utility and simplicity of the system in their minds. Perceived usefulness is the extent to which an individual believes a technology will improve their efficiency at work, as described by the TAM; perceived ease of use is the degree to which an individual believes a technology will be simple to master [4]. Cashless payment systems, like Touch n Go cards in Malaysia, have been the subject of several studies looking at the relationship between user perceptions of the system's utility and perceived ease of use and subsequent adoption. For instance, [15] discovered that users' propensity to utilise mobile payment systems like Touch n Go cards was strongly impacted by users' perceptions of the system's utility and convenience of use. Mobile payment systems' utility and convenience might have a significant impact on consumers' adoption behaviour, according to findings. The perceived utility and perceived simplicity of use positively affected consumers' desire to use cashless payment systems in a study done by [12] in Malaysia. Those who saw the value and simplicity of cashless payment systems were more inclined to embrace them, the survey found.

[13] did research on the topic of e-wallets in Malaysia, which include Touch n Go cards, and found that perceived utility and perceived simplicity of use strongly affected consumers' propensity to adopt. The study found that the two most important factors in determining whether consumers will embrace e-wallets were perceived utility and perceived ease of use. Users' desire to embrace Touch n Go cards for cashless transactions in Malaysia might be strongly influenced by their perceptions of the cards' utility and convenience of use. Users are more likely to embrace and utilise a system if they find it to be both beneficial and simple to operate. Companies selling Touch n Go cards, then, need to put their attention on making the system as appealing as possible by minimising its apparent complexity.

Practical Contribution:

The proliferation of smartphones and tablets, as well as their increased portability, has facilitated the development of e-commerce. People may now shop online from their phones or tablets whenever and wherever they choose. Because of this, people are increasingly depending on their mobile devices to complete a broad variety of financial operations, such as making purchases and paying bills.

This solution, backed up by citations and references, investigates the various forces that have prompted the meteoric rise in the number of mobile device purchases made online. To begin with, the ease of making online purchases whenever it is most convenient for them has been greatly enhanced by the widespread availability of cell phones. Statista predicts that by 2021, there will be 3.8 billion smartphone users throughout the world, up from an estimated 3.6 billion this year. Growth in smartphone ownership means additional options for customers to shop online from their handheld devices. As a bonus, cell phones come with capabilities like mobile wallets that allow users to conveniently save their payment information and make purchases online.

Second, customers are more likely to use their mobile devices for online shopping because of the proliferation of mobile apps. In the realm of e-commerce, websites like Lazada and Shopee provide mobile apps that let customers shop on the go. Consumers can now manage their accounts, pay bills, and transfer money much more quickly and easily thanks to the prevalence of mobile banking apps. In 2020, consumer expenditure on mobile applications was $143 billion worldwide, an increase of 20% over 2019. This figure was calculated using data compiled by App Annie [2]. That mobile applications are becoming more widely used and playing a role in the meteoric ascent of mobile commerce is clear from this trend. Finally, mobile devices are perfect for doing internet business because of their portability and ease. Consumers who are frequently on the go will like the convenience of mobile devices, as they allow them to conduct business and browse the web from virtually any location. Likewise, people are increasingly comfortable making online purchases from their mobile devices, rather than via a desktop or laptop computer. In conclusion, the proliferation and ease of smart gadgets have aided in the development of online trade. People increasingly rely on their mobile devices to complete a broad variety of financial operations, making them a crucial platform for engaging in online transactions. Companies need to make their websites mobile-friendly so they can meet the rising demand for mobile purchases.

8. Conclusion

Touch N Go Smart Cards' usability in Malaysia encourages cashless purchasing. According to studies, Touch N Go Smart Card users who value them were more inclined to use them for cashless purchases. If Touch N Go Smart Cards are easy to use, Malaysians are more inclined to utilize them.

User perceptions of Touch N Go Smart Cards' utility in encouraging future cashless transactions were favourably connected with their use. Touch N Go Smart Cards' apparent utility and ease of use encourage Malaysians to utilize them for cashless purchases. The poll found that Touch N Go Smart Cards' perceived usefulness and simplicity of use were the most critical elements in Malaysians' cashless transaction decisions. Security and privacy concerns prevent Malaysian Touch N Go Smart Card customers from making cashless payments. Consumers who are concerned about data sharing were less likely to use Touch N Go Smart Cards in cashless transactions. Age and usage frequency impact Malaysians' Touch N Go Smart Card cashless transactions. Studies found that Touch N Go Smart Card users under 30 and those who made more purchases were more likely to want to utilize them for cashless transactions. Expectations of cashless transactions strongly predict Touch N Go Smart Card use. The poll found that positive consumers were more inclined to use Touch N Go Smart Cards for cashless payments.

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