

FACTORS INFLUENCE THE ADOPTION OF SELF-SERVICE TECHNOLOGY IN  
MELAKA'S TELECOMMUNICATION INDUSTRY

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FACTORS INFLUENCE THE ADOPTION OF SELF-SERVICE TECHNOLOGY IN  
MELAKA'S TELECOMMUNICATION INDUSTRY

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This thesis is submitted in partial fulfilment of the requirements for the award of  
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**APPROVAL**

I/ We hereby declare that I/ we have read this dissertation/report and in my opinion, this dissertation/report is sufficient in terms of scope and quality as a partial fulfilment the requirements for the award of Bachelor of Technology Management (High Technology Marketing) with Honours

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**DECLARATION OF ORIGINAL WORK**

I hereby declared that this report entitled  
**“FACTOR INFLUNCE THE ADOPTION OF SELF-SERVICE TECHNOLOGY IN  
MELAKA’S TELECOMMUNICATION INDUSTRY”**  
is the result of my own research except as cited in the references. The report has not been  
accepted for any degree and is not concurrently submitted in the candidature of any other  
degree.

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## DEDICATION

I would like to dedicate the appreciation to my family members who supported me in term of spiritual and financial, beloved supervisor and panel who guided me throughout this research and course mates that assisted me through the journey of research.

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I would like to take this opportunity to express my sincere appreciation to my supervisor Dr. Nurulizwa Binti Abdul Rashid for guidance and encouragement throughout the journey to complete this final year project. Throughout her guidance, I managed to finish my final year project successfully within the time frame given. Besides, there are some other important people involved in this final year project, for instance my beloved lecturers, friends and course mates. I am deeply grateful for the guidance and support towards this project as play as an important role for this project.

Next, I am sincerely thanks to the researchers that they have previously conducted the similar study and published online. Although the research topic of the study was different, but the theory and knowledge provided were useful as a reference in this final year project.

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## ABSTRACT

Self-service technologies (SSTs) are largely introduced and promoted to replace traditional service encounters and researchers have been investigating the influencers of SST adoption. The purpose of the research project is to determine influential perceived factors on using self-service technology (SST) in order to find out Malaysian's behaviour intention towards SST. The results of this research would also be able to show that whether consumer perceived SST as supportive role or already become a vital role for daily life. In this study include four independent variables, namely perceived ease of use, perceived usefulness, need for interaction and risk to measure the relationship towards behavioural intention on SST. Secondary data was used for literature review; the proposed research framework was the results after analysing information from literature review contributed from many researchers. TAM model was adopted for the study with some modification, added more perceived factors that has been prove to be significant to SST in research done by other researchers. Primary data was collected 150 questionnaire surveys using probability sampling technique – cluster sampling method, through online self-administered questionnaire. This research found that only perceived ease of use, perceived usefulness and need for interaction are positive related to behavioural intention on SST. The findings of this study contribute to business management as well as government over Malaysia behaviour over using self-service technologies.

**Keyword** – *Self-service technology (SSTs), Technology acceptance model (TAM), need for interaction, risk, behavioural intention*

## ABSTRAK

Teknologi Layan-diri (SST) merupakan teknologi baru yang diperkenalkan dan disokong untuk mengganti perkhidmatan yang tradisional maka terdapat ramai penyelidik telah membuat penyelidikan tentang penerimaan orang awam terhadap kegunaan SST. Tujuan projek penyelidikan ini adalah untuk menentukan faktor-faktor yang mempunyai pengaruh terhadap penerimaan kegunaan teknologi layan diri (SST), malah melalui faktor tersebut, niat tingkat laku rakyat Malaysia terhadap penggunaan SST dapat dikenal pasti. Hasil penyelidikan ini juga dapat menunjukkan bahawa pengguna menganggap SST sebagai peranan yang menyokong atau telah menjadi peranan yang penting dalam kehidupan seharian. Dalam kajian ini, terdapat empat faktor yang dikaji untuk mengenal pasti pengaruhnya terhadap niat tingkah laku penggunaan SST. Faktor-faktor tersebut adalah mudah digunakan, berfaedah, keperluan untuk berinteraksi dan risiko. Kajian ini telah menggunakan data sekunder untuk semakan sastera dan rangka kajian yang dicadangkan adalah hasil daripada analisis maklumat dari kajian literatur yang disumbangkan oleh para penyelidik. Selain itu, model TAM telah diaplikasi dalam kajian ini dengan beberapa pengubahsuaian serta menambah lagi beberapa faktor yang disahkan mempunyai pengaruh terhadap penggunaan SST dalam penyelidikan yang telah dilakukan oleh penyelidik lain. Di samping itu, data primer kajian ini adalah dikumpul daripada 150 soal selidik yang menggunakan teknik pensampelan kebarangkalian iaitu kaedah pensampelan kluster, melalui soal selidik dalam talian. Kajian ini mendapati bahawa hanya faktor mudah digunakan, berfaedah dan keperluan untuk interaksi mempunyai pengaruh dan hubungan positif terhadap niat tingkah laku penggunaan SST. Hasil kajian ini dapat menyumbang kepada pengurusan perniagaan serta pihak kerajaan terhadap niat tingkah laku rakyat Malaysia terhadap penggunaan SST.

***Kata Kunci*** - *Teknologi Layan-diri (SST), Technology acceptance model (TAM), keperluan untuk berinteraksi, risiko, niat tingkah laku*



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## LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
SST	Self-Service Technology
ATM	Automated Teller Machine
KLIA	Kuala Lumpur International Airport
PTPTN	Perbadanan Tabung Pendidikan Tinggi Nasional
EPF	Employees Provident Fund
MEPS	Malaysian Electronic Payment System Sdn Bhd
CAGR	Compound Annual Growth Rate
ICT	Information and communications technology
NKEA	New Key Economic Areas
MAMPU	Malaysian Administrative Modernization and Management Planning Unit
TAM	technology acceptance model
QR	Quick Response
CD	compact disk
CSS	Customer Self-Services
TRA	theory of Reasoned Action
EOU	Ease of use
U	Usefulness
NFI	Need for interaction
R	Risk
BI	Behavioural Intention
ITU	International Telecommunication Union
CRM	Customer Relations Management



CAD	Computer Aided Design
LAN	Local Area Network
WAN	wide area network
DSL	digital subscriber line
IV	independent variables
DV	dependent variable
PB	phone banking
URL	Uniform Resource Locator
BTMM	Bachelor Degree in Technology Management (High Technology Marketing) with Honours
BTMI	Bachelor Degree in Technology Management (Technology Innovation) with Honours
BTEC	Bachelor Degree in Technopreneurship with Honours
SPSS	Statistical Package for the Social Sciences
SD	Standard Deviation
ANOVA	Analysis of Variance
ANCOVA	Analysis of Covariance
FPTT	Faculty Technology Management and Technopreneurship

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.0 Introduction**

In this chapter, there is explanation an overview of this research paper that helps to understand the factors that will influence the adoption of Self-Service Technology (SST) in Melaka which mainly focus on telecommunication industry example like Digi. This study aims to study the effect of perceived factors over the intention behaviour to use the SST. There are seven main areas which will be discussed in this chapter, including research background, problem statement, research questions, research objectives, the scope of the study, and lastly the significance of the study.

#### **1.1 Research Background**

Self-Service Technologies (SST) are technologies that allow individual to do a task or transaction without any interface with service staffs and require a consumer to participate in the whole operation process. Self-Service Technology (SST) play a role in Malaysian's daily life, it started back in 1981 when Maybank introduced Malaysia's first self-service automated teller machine (ATM) (Moreira, 2013). After Malaysia banking

industry introduced the self-service kiosk such as cash deposit machine and cheque deposit machine, it helps to support the heavy daily transactions activities in the banking industry.

AirAsia replaces counter check-in services for passengers departing KLIA 2 to self-check-in services. A few of SST was accessible to customers, including the website, smartphone, and kiosk to do check-in. Website and smartphone check-in option were available that was up to 1 hour prior before departure for AirAsia's flights, and 4 hours before departure for AirAsia X. Before customer proceeds to the baggage drop counters at KLIA 2, customer has to check in and print out their tags, whether at home printing or kiosks machine, (FCM Travel Solution, 2016).

Furthermore, Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN) has opened 20 JomPay kiosks at selected PTPTN branches under a strategic collaboration with AmBank Islamic Bhd to encourage more online transactions and there are 42 banks are participating with PTPTN for online transactions via JomPay (NST Online, 2017). There was a big improvement as the result show that up to RM6.98 million loan repayments were collected in January, and another RM11.52 million was collected in July 2017. This showed an increase of about 60 percent in the collection by using JomPay kiosks.

Table 1.1 shows the Self-Service Technologies (SST) options that were accessible in Malaysia. The information was obtain based on the review of the newspaper, websites, magazines and own observations.

Table 1.1  
Categories and examples of SST Adoption

		Interface		
		Mobile phone / Interactive Voice Response	Online / Internet Interactive	Interactive Kiosk
Purpose	Consumer Services	<ul style="list-style-type: none"> <li>• Mobile phone Banking</li> <li>• Air Flight information</li> <li>• Ordering status tracking</li> </ul>	<ul style="list-style-type: none"> <li>• Purchase package tracking</li> <li>• Bank account information</li> </ul>	<ul style="list-style-type: none"> <li>• ATM</li> <li>• Hotel check-in/out</li> </ul>
	Transaction	<ul style="list-style-type: none"> <li>• Mobile phone banking</li> </ul>	<ul style="list-style-type: none"> <li>• Online store purchasing</li> <li>• Online transaction</li> </ul>	<ul style="list-style-type: none"> <li>• Pay utility bill</li> <li>• Airport check-in</li> </ul>
	Self-help	<ul style="list-style-type: none"> <li>• Information telephone line</li> </ul>	<ul style="list-style-type: none"> <li>• Online information search</li> <li>• Online learning</li> </ul>	<ul style="list-style-type: none"> <li>• Tourism information</li> <li>• EPF statement</li> </ul>

Adapted from Meuter et al. (2000)

The market of SST is growing bigger than before as we can see much big companies had transformed their business to use SST. According to The Global Economy (n.d.), the number of ATMs available in Malaysia with a minimum of 27.17 ATMs per 100,000 adults in 2004 and a maximum of 54.42 ATMs per 100,000 adults in 2013. This shows that the capacity and availability of ATM machine provided. The difference of services indicates the significant attention and potential growth in ATMs services.

### 1.1.1 The Self-Service Technology of Telecommunication Industrial in Malaysia

According to Maybank2u. (2010), Maybank had developed the first online banking – “Maybank2U” in Malaysia since 2000. Then “Maybank2U” had extended its function to extra function such as phone pre-paid reloads online utility bills, online shopping, and education. In 2010, “Maybank2U” had improved to be applicable on smartphones. The development in order to improve user-friendly and secure.

Malaysian Electronic Payment System Sdn Bhd (MEPS) supports local, development, Islamic and foreign banks. Through its interbank e-payment services for consumers, MEPS provide interbank payment network service that had been an integral part in the Malaysian financial landscape (Malaysian Electronic Payment System Sdn Bhd (MEPS). n.d.). MEPS provide “Shared ATM Network” that give any bank users to get their money anywhere from any banks’ ATMs.

According to Kamaruzaman, Handrich, & Sullivan, (2010.), Malaysian Government start offer online payment and other services for public use. Those services were slow because Malaysia’s Internet infiltration during that period was low. In 2003, only 9 out of 100 Malaysians often used Internet. After Government approach in 2008, this number increase to 35 in every 100 Malaysians, displaying a CAGR of 20% from 2002 to 2007. Allowing infrastructure, increase in the number of Internet users, improvement of ICT skills and legal policy are some of the factors that increase the acceptance level of e-Commerce among Malaysians. The government also use measures to contrast a computer-mediated environment for the retail sector. In fact, adoption of e-Commerce applications by Malaysian retailers in order to improve their marketing strategies and decrease overall costs and increase their productivity. In 2008, Malaysia banks collect a record of a number of 21 million transactions on the low value, personal account section. Some online banking facilities like check the inquiries, payments for the bill, credit card payments, money transfers, share investing, insurance and other.

### 1.1.2 Internet Users in Malaysia

Year	Internet Users**	Penetration (% of Pop)	Total Population	Non-Users (Internetless)	1Y User Change	1Y User Change	Population Change
2016*	<b>21,090,777</b>	68.6 %	30,751,602	9,660,825	2.2 %	453,560	1.39 %
2015*	<b>20,637,217</b>	68 %	30,331,007	9,693,790	2.2 %	453,369	1.43 %
2014	<b>20,183,848</b>	67.5 %	29,901,997	9,718,149	2.3 %	450,888	1.48 %
2013	<b>19,732,960</b>	67 %	29,465,372	9,732,412	3.3 %	636,523	1.53 %
2012	<b>19,096,437</b>	65.8 %	29,021,940	9,925,503	9.6 %	1,666,925	1.57 %
2011	<b>17,429,512</b>	61 %	28,572,970	11,143,458	10.1 %	1,598,233	1.61 %
2010	<b>15,831,279</b>	56.3 %	28,119,500	12,288,222	2.4 %	368,770	1.66 %
2009	<b>15,462,509</b>	55.9 %	27,661,017	12,198,508	1.9 %	286,349	1.7 %
2008	<b>15,176,160</b>	55.8 %	27,197,419	12,021,259	1.9 %	287,212	1.75 %
2007	<b>14,888,948</b>	55.7 %	26,730,607	11,841,659	9.8 %	1,327,238	1.78 %
2006	<b>13,561,710</b>	51.6 %	26,263,048	12,701,338	8.1 %	1,017,269	1.81 %
2005	<b>12,544,441</b>	48.6 %	25,796,124	13,251,683	17.2 %	1,841,086	1.83 %
2004	<b>10,703,355</b>	42.3 %	25,332,026	14,628,671	23.1 %	2,006,231	1.86 %
2003	<b>8,697,124</b>	35 %	24,869,423	16,172,299	10.2 %	805,963	1.92 %
2002	<b>7,891,161</b>	32.3 %	24,401,977	16,510,816	23.6 %	1,505,227	2.01 %
2001	<b>6,385,934</b>	26.7 %	23,920,963	17,535,029	27.5 %	1,377,469	2.14 %
2000	<b>5,008,465</b>	21.4 %	23,420,751	18,412,286	77.7 %	2,190,679	2.28 %

Figure 1.1: Malaysia Internet Subscribers

Figure 1.1 shows that the data for Malaysia Internet Users from 2000 to 2016. Internet User, in this case, refers to any individual who can access the Internet at home or any type of device and connection. Malaysia internet users had increased from 5,008,465 (2000) to 21,090,777 (2016) which was a huge change with an increase of 321% in 16 years (Internet live stats, 2016).

### 1.1.3 Malaysia Science and Technology Policy

Malaysia Government had found the key driver of the new economy - Internet technology. As the key to improving society, economy and politics, Malaysia's 3rd long-term plan - Third Outline Perspective Plan (2001-2010) had underlined that Information Communications Technology (ICT) was that key. In the declared of 10th Malaysia Plan, the 12 New Key Economic Areas (NKEA) and ICT had been classified as one of the 12 in order to improve Malaysia to high-income economy (EPU, 2010).

According to Malaysian Administrative Modernization and Management Planning Unit (MAMPU), (2016), The Malaysian Public Sector ICT Strategic Plan (2016-2020) has 5 ICT Strategic Thrusts and their objectives were identified to ensure optimum usage of ICT to achieve maximum benefits and results:

- (1) Integrated digital services
  - Provide quality end to end digital services
  - Provide inclusive and citizen-centric digital services
- (2) Data-driven government
  - Manage and realize the value of data in a holistic and efficient manner
  - Strengthen cross-agency data sharing
- (3) Optimize shared services and strengthen cybersecurity
  - Increase sharing of ICT resources through a centralized and structured initiative
  - Ensure secure and trusted digital services
- (4) Collaborative and dynamic ICT governance
  - Strengthen leadership and governance for planning and coordination of digital initiatives
  - Strengthen ICT management and organization functionality to be more dynamic and efficient
- (5) Professional and capable workforce
  - Strengthen the capabilities of public sector ICT personnel