

FACTORS INFLUENCING CONSUMER INTENTION TO USE SMART
BIKE-SHARING SERVICES IN MELAKA

NUR KHAIRIENA BINTI SALLEH

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

APPROVAL

I/We acknowledge that have read this report and on my view this report is sufficient in term of scope and quality for purpose for the certificate of Bachelor of Technology Management (High Technology Marketing) With Honours.

Signature :

Name of Supervisor : DR. MURZIDAH BINTI AHMAD MURAD

Date :

Signature :

Name of Panel : PROF. MADYA DR. JUHAINI BINTI JABAR

Date :

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NUR KHAIRIENA BINTI SALLEH

This report submitted in fulfilment of requirement for the degree of Bachelor
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DECLARATION OF ORIGINAL WORK

I, Nur Khairiena Binti Salleh, (I/C Number: 960122-07-5456)

“I am hereby to declare that the work of this exercise is mine except for the quotations and summaries that have been duly acknowledge”

Signature :

Name : NUR KHAIRIENA BINTI SALLEH

Date :

DEDICATION

I am dedicating this thesis to some beloved people who are special and meant so much to me.

First and foremost, to my lovely parents, Mr. Salleh and Mrs. Raeza, who raised me, loved me, taught me the value of hard work and support me physically, mentally and financially during my study. I still remember the day you sent me to matriculation – dad, I know you cried and mom, I know you can't sleep. Thank you for your constant support throughout my 4 years here at UTeM. I would not be where I am today without encouragement and sacrifice from both of you.

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Not forgetting also to my only brother who passed away 8 years ago, Mohd Haikal Amzar. It's so heart-breaking that you were taken way too soon. I wish I had more time to spend with you. Thank you for being a part of my childhood. I am grateful to have such a wonderful brother like you. You are loved and will be forever missed.

Last but not least I am dedicating this thesis to my aunt, Mrs. Rafizah, my uncle Mr. Rusdi and my grandparents, Mr. Abu Bakar and Mrs. Rokiah who always prayed, encouraged and support me through all my ups and down. I cannot express how important your presence has been throughout my life. Thank you for taking care of me since the day I was born. I love all of you so much.

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ABSTRACT

A smart bike-sharing services is a sustainable transportation that allows individuals to commute in an environmentally manner. It can be accessed through the web or an app. There are two types of the bike which are docked and dockless. Both bikes are groups together either in a station or parked everywhere. In Melaka, the smart bike-sharing services have implemented in 2016. This means the implementation of the bikes is still new. In line with Melaka mission to become a green technology state by 2020, so this research was to identify the awareness of the user towards the bike and what makes them intend to use the smart bike-sharing services in Melaka. The target respondents were tourists in Melaka with cycling experience as the smart bike-sharing services were implemented to attract more tourists in Melaka. The instrument for data collection was a questionnaire and respondents were selected using purposive sampling to filter their eligibility. More than 400 questionnaires were distributed through the Google Survey and paper. However, only 390 was eligible to become respondents. All the data collected were analysed by using SPSS version 23. The descriptive analysis was used in this research reveal the respondent's low awareness, while multiple linear regression was used to find the factor influencing and the most important factor influencing the consumer to use smart bike-sharing services. The results revealed four independent constructs (perceived usefulness, perceived ease of use, perceived environment, and perceived innovativeness) were found significant in influencing consumer intention to use smart bike-sharing services in Melaka where the p -value <0.05 , thus the hypotheses tested were accepted. While two independent constructs (perceived enjoyment and perceived value) were found not significant in influencing consumer intention to use smart bike-sharing services in Melaka where the p -value >0.05 , thus the hypotheses tested were rejected. The implications from these results were discussed.

ABSTRAK

Perkhidmatan perkongsian basikal pintar adalah pengangkutan yang mampan yang membolehkan individu bergerak secara mesra alam. Ia boleh diakses menerusi web atau aplikasi. Terdapat dua jenis basikal sama ada docked atau dockless. Kedua-dua jenis basikal diletakkan di dalam kumpulan sama ada di stesen atau diletakkan di mana-mana sahaja. Di Melaka, perkhidmatan perkongsian basikal pintar telah dilaksanakan pada tahun 2016. Ini bermakna pelaksanaan basikal tersebut masih baru. Selaras dengan misi Melaka untuk menjadi negeri teknologi hijau menjelang tahun 2020, kajian ini adalah untuk mengenal pasti kesedaran pengguna terhadap basikal dan apa yang membuatkan mereka berhasrat menggunakan perkhidmatan perkongsian basikal pintar di Melaka. Instrumen pengumpulan data adalah soal selidik dan responden dipilih menggunakan pensampelan purposif untuk menyaring kelayakan mereka. Lebih daripada 400 soal selidik telah diedarkan melalui Google Survey dan kertas. Walau bagaimanapun, hanya 390 yang layak menjadi responden. Semua data yang dikumpulkan dianalisis dengan menggunakan SPSS versi 23. Analisis deskriptif telah digunakan dalam kajian ini mendedahkan kesedaran responden adalah rendah, manakala regresi linear berganda digunakan untuk mencari faktor yang mempengaruhi dan faktor terpenting yang mempengaruhi pengguna menggunakan perkhidmatan perkongsian basikal pintar. Hasil kajian menunjukkan empat pembolehubah bebas (kegunaan yang dirasakan, kemudahan penggunaan yang dirasakan, persekitaran yang dirasakan, dan inovasi yang dirasakan) didapati signifikan dalam mempengaruhi niat pengguna untuk menggunakan perkhidmatan perkongsian basikal pintar di Melaka di mana $p\text{-value} < 0.05$, oleh itu hipotesis diuji telah diterima. Sementara itu, dua pembolehubah bebas (keseronokan yang dirasakan dan nilai yang dirasakan) tidak dapat dilihat dalam mempengaruhi niat pengguna untuk menggunakan perkhidmatan perkongsian basikal pintar di Melaka di mana $p\text{-value} > 0.05$, oleh itu hipotesis yang diuji ditolak. Implikasi dari hasil ini telah dibincangkan.

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LIST OF ABBREVIATIONS

PBS	=	Public Bike Sharing
MBS	=	Melaka Bike Share
PTHM	=	Melaka Green Technology Corporation
TAM	=	Technology Acceptance Model
GDP	=	Gross domestic product
UNESCO	=	United Nations Educational, Scientific and Cultural Organization
WHS	=	World Heritage Sites
GCAP	=	Green City Action Plan
PU	=	Perceived Usefulness
PEOU	=	Perceived Ease of Use
PENJ	=	Perceived Enjoyment
PV	=	Perceived Value
PE	=	Perceived Environment
PI	=	Perceived Innovativeness
GPS	=	Global Positioning System
IV	=	Independent Variables
DV	=	Dependent Variable
SPSS	=	Statistical Package for Social Science
MRA	=	Multiple Regression Analysis
ANOVA	=	One-Way Analysis Of Variance

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter opens with the background of the study and further describes the factors influencing consumer intention to use smart bike-sharing services in Melaka in section 1.2. This followed by the research problem in section 1.3 which discussed what are the issues regarding the implementation of smart bike-sharing services in Melaka. While the research objective in section 1.4 discussed the main target for this study. Next, the research question was formed based on the research objective in section 1.5, the implication of research will discuss in section 1.6 and lastly, the significance of research in section 1.7 will discuss who will get benefit from this study.

1.2 Research Background

In recent years, climate change has become a major concern, declining in an urban environment and unhealthy lifestyles are getting more attention to sustainable transportation alternatives such as bicycles (Sun, Y. 2018). Cycling a bicycle is a form of regular physical activity that gives health benefits to all ages of people (Bauman & Rissel, 2009). A bicycle generally gives an advantage to public transport and the environment. It reduces fossil fuel consumption and noise pollution. Besides, cycling also helps to minimize the number of trips in contaminants mode (Gonzalo-Orden.H. et al., 2014). (Bauman et al., 2008) agrees that apart from improving health, cycling also helps to stimulate economic growth and improving social ties. In light with these benefits, cycling has become a major component of sustainable urban transport systems. According to (Okuda et al., 2012), smart mobility is utilizing all transportation services in the city by coordinating the different modes of transportation. While moving smartly means the public transport having a low environmental impact, a network of safe and continuous cycle lane, and interchange parking that avoids city congestions (Garau et al., 2016).

The bike-sharing projects have been growing exponentially around the world over the previous decade (Fong.C, 2018). More than 500 cities in 49 countries (Figure 1.1) host advanced bike-sharing programs with supply over 500,000 bicycles which include Eastern Asia, Australia, and the Americas [Figure 1.2] (Larsen.J, 2013).

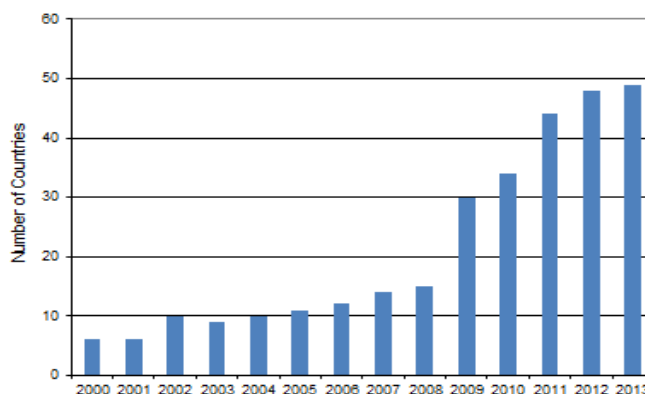


Figure 1.1: Countries with bike-sharing programs from January 2000 to April 2013
(Source: EPI based on Midgley; Meddin and DeMaio; Shaheen et al.)

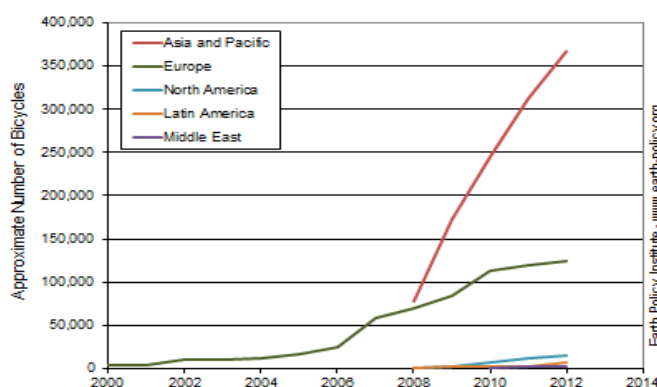


Figure 1.2: Number of bike-sharing programs by region from year 2000 to 2012
(Source: EPI based on Migdley; Meddin and DeMaio; Yang et al.; Shaheen et al.)

The basic concept of bike-sharing services is sustainable transportation. They differ from the traditional bicycle, mostly leisure-oriented bicycle rental services as it can be “rented” at one location and either returned there or at another location (Midgley, P., 2009). The smart bike is public-bicycle concept starting with the first generation called “white bike” where it is ordinary bikes, white in colour and provided for public use in the year 1968 in Amsterdam, Netherlands. The second generations were introduced in Copenhagen, Denmark in 1995 with some improvements. It can be picked-up and returned at specific locations with a coin deposit. However, the vandalism issues are raising leading to the implementation of the third generation of public-use bicycle programs. Recent technological advances have allowed the bicycle to be successfully challenged throughout the world named “Smart Bike”. The Smart Bike where it was “smartened” with various technological improvements such as electronically-locking racks or bike locks, telecommunication systems, smartcards and

fobs, mobile phone access, and on-board computers (Demaio, 2009). A smart bike-sharing services is a sustainable transportation. It allows individuals to meet their transportation needs in an environmentally sound manner. A smart bike can be accessed with either a smartcard, magnetic stripe card, or unique numerical code (Figure 1.3). The bikes are located either in groups as “stations” of bicycles, each bicycle electronically locked to a specially-designed rack, or individually at parking meters and bicycle racks. A person can ride the bike to their destination, and lock it at another station or parking meter to let someone else use it (Demaio, 2009).



Figure 1.3: Smart bike card with numerical code

A station-based named docked bike-sharing services (Figure 1.4) or public bike-sharing (PBS) have developed to promote healthy mobility and enhancing the connectivity (Uitp, 2017; Huang.T, 2018). The docked bike-sharing services allow the user to lock and unlock bicycles from docking stations. Besides, the trips for the bikes are restricted where the user needs to start and end their trip at its docking station (Mckenzie, G., 2018). The dockless bike-sharing services (Figure 1.5) have then joined the market over past few years. The bikes scattered throughout the city where it can be found anywhere depending on where the last user chooses to stop (Mckenzie, G., 2018). It equipped with technology that allows unlocking and tracking of the bike. Generally, these bicycles are controlled by smartphone's application, unlocked through the scanning a QR code, and can be tracked through integrated GPS systems (Figure 1.6). This bike-sharing provides flexible mobility, reduce gridlock, reduce emissions, support multimodal transport connections, increased the number use of public transit and alternative modes of transportations and enhance environmental awareness. The main goal is to expand and integrate cycling into transportation systems so that it can more readily become one of daily transportation mode for people. (Shaheen et al., 2010).



Figure 1.4: Docked bike-sharing services or public bike-sharing (PBS)



Figure 1.5: Dockless bike-sharing services



Figure 1.6: Smart bike-sharing apps equipped with QR code scanner

In Malaysia, the (Federal Department of Town and Country Planning, 2006) expressed that an efficient and sustainable urban development was based upon the National Urbanization Policy. Malaysian government attempted to make a sustainable and environmentally friendly development to form the basis of environmental conservation and enhance the urban quality of life. These initiatives are to introduced to promote more sustainable transportation in order to reduce the need to travel by car such as promoting the use of bicycles was highlighted in major city centres to reduce congestion and pollution.

Smart bike-sharing services is generally a new thing in Malaysia (Vernon, 2017). The bike-sharing companies from China are invading Malaysia by providing better transport and connectivity in local communities by solving the “last-mile” issue in an environmentally friendly way through a tailored, smarter and convenient mode of transport for urban residents (Kaur.D, 2017).

Hubert Fong, founder of public bike sharing (PBS) proposes a healthier, cheaper and more efficient way to travel in Penang and Melaka (Sue-Anne.C, 2016). He also launched the bike-sharing in Johor which at Iskandar Puteri in 2017 (Xi.P.W, 2016). Penang launched their first bike-sharing in George Town and several parts of Penang Island for 30 minutes’ free ride per session and RM 1 per hour after the 30 minutes named Penang LinkBike (Chow.T.S, 2016; OnlyPenang, 2016). The LinkBike (Figure 1.7) has 25 stations with 300 bike docks and 250 bikes placed around George Town, Gurney Drive, Karpal Singh Drive and Queensbay Mall (Shiying.C.C, 2018). In conjunction with Resilient Cities Asia-Pacific 2016, Melaka has launched its first bike-sharing services in March 2016 name Melaka Bike Share (MBS) (Figure 1.8) for RM10 per 12-hour day pass and has only 3 docking stations, 30 bikes and 60 docks (Melaka Bike Share, 2016). The Johor bike share (Figure 1.9) offers 1 docking stations with 10 bikes for RM 10 per day pass (Melaka Bike Share, 2016).

Malaysia is the third country in the South-East Asian region to welcome dockless bike-sharing services starting with the Singapore-based bike-sharing services, oBike (Figure 1.10) which has been offering its services in Malaysia since mid-April 2017 for the cost of usage RM 1 per 15 minutes. (Khidhir.S, 2018; Ho.Z, 2017). There were around 100,000 oBike bicycles in selected areas has officially launched in Klang Valley (Bernama, 2017; Obike, 2017). Johor also takes this opportunity to set up 13 oBike in their Johor Bahru and 7 to 8 bike were placed in each station (Ahmad.N, 2018). Other than Johor Bahru, oBike also was located at the recreational area in Muar and Kluang (Yun.Z, 2018). Besides, oBike was also offered in Terengganu which at Kuala Terengganu (Ahmad.N, 2018). About 40 percent of oBike’s consumers are students who live on-campus where most of them don’t own a car but they want to travel (Koh.L, 2017).

In September 2017, the China bike-sharing company, Mobike (Figure 1.11) was launched in Shah Alam with a usage rate of RM1.50 per 30 minutes (Chan.M, 2017). Mobike occupies the second-largest proportion of the Chinese shared bicycle market has contributed 600,000 shared bikes with a market share of 40.1% and has readied 10 bicycle parking hubs and over 100 bicycles in the Cyberjaya region (Chan.M, 2017; Ma, Zhang & Wang, 2017).

Another Chinese bike-sharing company Ofo (Figure 1.12) has launched its service in August 2017 and choose Melaka as their first destination with the cost of usage RM 1 per hour (Kaur.D, 2017; Tariq.Q, 2018). Ofo bike occupy the largest proportion of the Chinese shared bicycle market which has contributed 800,000 shared bikes with a market share of 51.2% and has already placed 500 cycles in the downtown area of Melaka, with a further 1,500 set to be deployed by the end of August in 2017 (Ellis. J, 2017; Ma, Zhang & Wang, 2017).



Figure 1.7: Docked Penang LinkBike



Figure 1.8: Docked Melaka Bike Share