

**MODELLING TOURISTS' BEHAVIOURAL
INTENTIONS TOWARDS E-HAILING SERVICES
IN MELAKA: AN EXTENDED UTAUT
APPROACH WITH SECTOR-SPECIFIC
ADAPTATIONS**

AHMAD SAHIR BIN JAIS

UNIVERSITI SAINS MALAYSIA

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by

AHMAD SAHIR BIN JAIS

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LIST OF ABBREVIATIONS

CTD	Central Tourist District
DOI	Diffusion of Innovation
EFA	Exploratory Factor Analysis
EE	Effort Expectancy
FC	Facilitating Condition
GTP	Government Transformation Plan
LOS	Level of Service
MM	Motivated Model
MPCU	Model of PC Utilisation
PE	Performance Evaluation
POI	Points of Interest
Q-Q	Quantile-Quantile
SI	Social Influence
TAM	Technology Acceptance Model
TNC	Transportation Network Company
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
UNESCO WHS	United Nations Educational, Scientific and Cultural Organisation World Heritage Site

**PEMODELAN NIAT TINGKAH LAKU PELANCONG TERHADAP
PERKHIDMATAN E-HAILING DI MELAKA: PENDEKATAN UTAUT
YANG DIPERLUAS DENGAN PENYESUAIAN SEKTOR KHUSUS**

ABSTRAK

Mengintegrasikan perkhidmatan e-panggilan ke dalam rangkaian pengangkutan semakin penting untuk pembangunan pelancongan lestari di seluruh dunia. Walaupun kepentingannya, masih terdapat jurang dalam memahami penerimaan dan penggunaan perkhidmatan ini oleh pelancong, terutamanya di destinasi dengan pilihan pengangkutan awam yang terhad seperti Melaka. Kajian ini bertujuan untuk mengisi jurang tersebut dengan menyiasat niat tingkah laku pelancong terhadap perkhidmatan e-panggilan di Melaka, menggunakan pendekatan kuantitatif. Berdasarkan model Teori Penyatuan Penerimaan dan Penggunaan Teknologi (UTAUT), kajian ini mengkaji faktor-faktor yang mempengaruhi niat pelancong untuk menggunakan perkhidmatan e-panggilan. Satu soal selidik berstruktur telah digunakan untuk mengumpul data daripada sampel 397 pelancong di Melaka, menggunakan teknik persampelan mudah. Kajian ini menggunakan metodologi pengesahan untuk mengesahkan kebolegunaan model UTAUT dalam konteks landskap pelancongan di Melaka. Penyelidikan ini menerangkan mekanisme asas yang mempengaruhi penerimaan pelancong terhadap perkhidmatan e-panggilan dengan mengkaji hubungan antara pelbagai penentu, seperti Jangkaan Prestasi, Jangkaan Usaha, Pengaruh Sosial, dan Keadaan yang Memudahkan. Dapatan utama menunjukkan bahawa Jangkaan Prestasi, atau persepsi tentang kegunaan perkhidmatan e-panggilan dalam meningkatkan pengalaman pengangkutan, secara signifikan membentuk niat pelancong. Selain itu, Keadaan yang Memudahkan, seperti ketersediaan

infrastruktur dan sokongan teknologi, juga memainkan peranan penting. Kajian ini mengenal pasti kesan moderator daripada Jantina, Umur, Pengalaman, dan Kesukarelaan Penggunaan terhadap hubungan antara penentu ini dan niat tingkah laku, yang memberikan pemahaman yang lebih mendalam tentang tingkah laku pelancong dalam penerimaan perkhidmatan e-panggilan. Penemuan ini menggariskan kepentingan Pengaruh Sosial dan Keadaan yang Memudahkan dalam membentuk tingkah laku pelancong terhadap perkhidmatan e-panggilan. Kajian ini menyumbang kepada pemahaman teori dan amalan industri. Dari sudut teori, ia memperhalusi model UTAUT bagi konteks mobiliti pelancong. Dari sudut praktikal, kajian ini mencadangkan strategi seperti kempen pemasaran yang didasarkan untuk meningkatkan kesedaran, pembangunan infrastruktur bagi menyokong integrasi e-hailing, serta inisiatif bagi memupuk norma sosial yang positif terhadap pengangkutan berasaskan teknologi. Melalui pelaksanaan strategi ini, destinasi pelancongan seperti Melaka dapat mengoptimumkan penggunaan perkhidmatan e-hailing, mempertingkatkan mobiliti pelancong, dan menyokong pembangunan pelancongan lestari..

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APPROACH WITH SECTOR-SPECIFIC ADAPTATIONS**

ABSTRACT

Integrating E-hailing services into transportation networks is increasingly vital for sustainable tourism development worldwide. Despite its importance, there remains a gap in understanding tourists' acceptance and utilisation of these services, particularly in destinations with limited public transportation options like Melaka. This study aims to address this gap by investigating tourists' behavioural intentions toward E-hailing services in Melaka, employing a quantitative approach. Based on the Unified Theory of Acceptance and Use of Technology (UTAUT) model, this research examines factors influencing tourists' intentions to use E-hailing services. A structured questionnaire was used to collect data from a sample of 397 tourists in Melaka, employing a convenience sampling technique. The study employs a confirmatory methodology to validate the applicability of the UTAUT model in the context of Melaka's tourism landscape. The research explains the underlying mechanisms driving tourists' acceptance of E-hailing services by examining the relationship between various determinants, such as Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. Key findings indicate that Performance Expectancy, or the perceived usefulness of E-hailing services in enhancing transportation experiences, significantly shapes tourists' intentions. Facilitating Conditions, such as the availability of infrastructure and technological support, also play a critical role. The study identified the moderating effects of Gender, Age, Experience, and Voluntariness

of Use on the relationship between these determinants and Behavioural intentions, providing a nuanced understanding of tourist adoption behaviour. The study contributes both theoretically and practically. It refines the UTAUT model for tourism mobility and provides actionable recommendations for policymakers and E-hailing service providers. Proposed strategies include targeted marketing campaigns to increase awareness, enhanced infrastructure development to support E-hailing integration, and initiatives to promote positive social norms around technology-driven transportation. By implementing these strategies, destinations like Melaka can optimise E-hailing services, enhance tourist mobility, and promote sustainable tourism development.

CHAPTER 1

INTRODUCTION

1.1 General Overview of The Study

The motivation to travel for tourists has many facets, including the influence of suitable transportation modes. Previous studies have long researched and acknowledged this notion (Dellaert et al., 1998; Lew & McKercher, 2006a; Prebensen, 2002). Recent studies also reinforce the assumption that transportation mode affects tourist travel behaviour, mobility, satisfaction and destination accessibility during pre-travel, as well as at the destination and post-travel (Chong, 2015; Gutierrez & Miravet, 2016; Lam et al., 2013; Le-Klähn, 2014a, 2014b; Terrien et al., 2016). During pre-travel, the concerns are more on how the tourist intends to get to their destination, which induces more complex and careful consideration in the decision-making process. The consideration also happens during the post-travel part of the journey. Most of the time, at the host destination, the arrangement for the modality is often neglected, to the extent that it will disrupt the travel experience.

At the host destination, tourists rely most of the time on the availability of public transportation systems to move around, especially those who primarily travel using public transportation networks such as planes, buses, trains, and ferries. These so-called traditional modes of public transportation run on tight and fixed schedules, are under-maintained, are not cost-effective, have long waiting times and multiple stops, and, most of the time, are unreliable in specific host destinations. The lack of reliable alternatives has resorted tourists to private transportation, eventually creating more problems such as congestion and environmental pollution. The lack of transportation mode in the host destination also means that tourist mobility is limited

to their capacity to acquire some mode of transportation to move around. Bound destinations or isolated Point-Of-Interests (POI) within the host destination will be less visited and patronised.

An alternative solution for rapid mobility and accessibility without depending too much on the burgeoning and ageing public transport system was in the form of shared mobility. The concept of shared mobility fell under the concept of sharing economy, also known as collaborative consumption. The sharing economy, or collaborative consumption, is a universal concept that has become indispensable in some markets (S. Shaheen et al., 2016). The term “sharing economy” is an umbrella term that denotes the preference to pay for assets or services by consumption or on-demand rather than owning assets permanently or signing long-term contracts for services (Daunorienė et al., 2015; Hamari et al., 2016; Monaco, 2016; Peeters et al., 2015; Schor, 2015). The goods can be services or materials rendered through “peer-to-peer” connectivity or a legal business entity. The sharing economy encompasses many things, including transportation, accommodation, logistics, food, and creative ideas (Choe et al., 2016). The sharing economy can improve efficiency, provide cost savings, and generate money through underused assets, create shared mobility and accessibility, offer social and environmental benefits (Curtis & Perkins, 2006; Ganesh Rasagam, 1999; Ivanova, 2015; S. Shaheen et al., 2016).

Under the sharing economy, the concept of shared mobility is introduced to better quantify and characterise the transportation sector in the sharing economy. Shared mobility is the idea of using a vehicle, bicycle, or another type of modality. It is a new transportation approach that allows users to access transportation modes as required for short periods. (Daunorienė et al., 2015; S. Shaheen et al., 2016; S. Shaheen

& Chan, 2015a). Shared mobility includes various forms of car-sharing, bike-sharing, ridesharing (carpooling and vanpooling), and on-demand ride services (E-hailing/E-hailing). It has revolutionised how people travel and commute from one destination to another, with significantly lower costs than traditional modes of transportation. Conveniently, it has provided commuters with accessibility and mobility to their destinations through transportation facilities. However, its Achilles' heel is over-dependent on technology to ensure its efficiency and long-term sustainability.

Transportation and automotive-based industries, for example, have been successful recipients of these changes even though some parties labelled it as disruptive to the traditional business structure, but are welcomed by the users (Lyons & Wearing, 2015; Peeters et al., 2015; PricewaterhouseCoopers LLP, 2015; S. Shaheen & Chan, 2015; Swig et al., 2014; Woskow, 2014). Introducing these E-hailing and ride-sharing services has liberalised how commuters, passengers, and tourists plan and manage travel patterns and behaviours. As for tourism, the impact of the sharing economy is not yet fully understood, as these recent changes have only happened in the past few years. The extent, benefits, and impact of the sharing economy on the tourism industry have yet to be ascertained entirely.

Malaysia is among Southeast Asia countries with a modern and integrated public transport network with choices of rail services, Intercity and urban buses, Taxis, car rentals and a network of paved roads and highways. However, this is primarily concentrated in the major urban cities within the Greater Klang Valley and a few regional cities such as *Kota Kinabalu*, *Kuching*, *Johor Bahru*, and *Georgetown*. Some states and capitals, such as *Melaka*, *Kota Bharu*, *Kuala Terengganu* and *Alor Setar*, are still lagging. There has been an effort to improve the transportation network as

stated in the Government Transformation Plan (GTP) in 2013 (Government of Malaysia, 2013), and this has been continuously rectified over the years since its inception. Dissatisfaction still prevails concerning service quality, availability, coverage, and pricing. Dissatisfaction is evident in the low ridership of public transportation, 17.1 % in 2014, among the Malaysian population (The World Bank, 2015). This low ridership could be traced back to the lack of inadequate transportation infrastructure, remoteness of the location, low urban population density and abridged public transportation demands.

Tourism destinations depend on transportation networks for ease of movement for tourists, internationally and domestically. Domestic tourists prefer to use their transport due to the ease of movement and low cost. The same goes for tourists from countries that share land borders with Malaysia, such as Singapore and Thailand. Most of the time, international tourists depend on public transport for mobility within the host destination. It could be assumed that without proper connectivity between the transportation network and the host destination, the sustainability and competitiveness of the host destination is at stake.

With that in mind, significant cities' transportation infrastructure issues must be addressed accordingly. For example, the state of Melaka in Malaysia depends heavily on tourism as an attraction and source of income. The availability of public transportation systems and networks is synonymous with tourism, a significant aspect of human mobility. As one of the major tourism destinations in Malaysia, Melaka is without its Achilles heel. Traffic congestion is among its drawbacks. With the rapid expansion of the tourism industry in Melaka, the state has experienced significant traffic congestion during peak season. In order to give a better perspective on the

amount of traffic entering Melaka daily, research by (Sukri, Chew, Hamid, & Loo, 2016) on the sustainability of land public transport in Melaka noted that, on average, the increase in traffic flow at two major toll plazas, annually is at 7.6%. The last recorded data, in 2010, indicated about 10 million vehicles entering and exiting the Ayer Keroh and Simpang Ampat Toll Plaza annually. This number includes local populations, tourists, trade vehicles, and transit vehicles. By compounding the figure annually, it is estimated that by 2020 and beyond, some 17,967,935 vehicles will enter and exit Melaka at this two-main interchange.

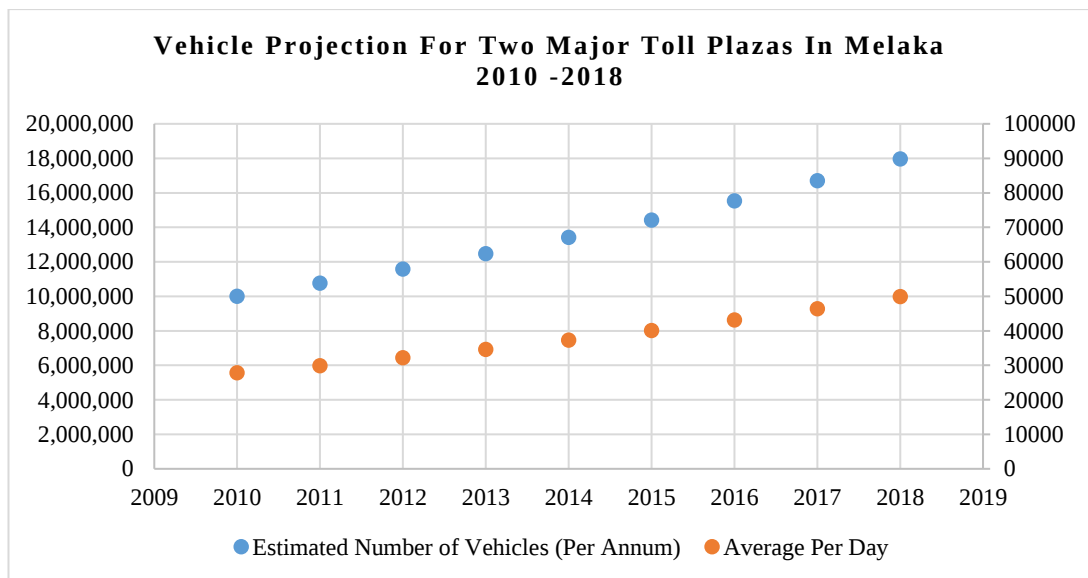


Figure 1.1 Vehicle Projection into Melaka Form Major Expressway

Source: Projection based on (Sukri et al., 2016)

That would be a considerable sum of fifty thousand vehicles, on average, daily. Figure 1.1 above shows the vehicle increase and the daily average going through the two main Toll Plaza in Melaka, the Ayer Keroh and Simpang Ampat Interchange.

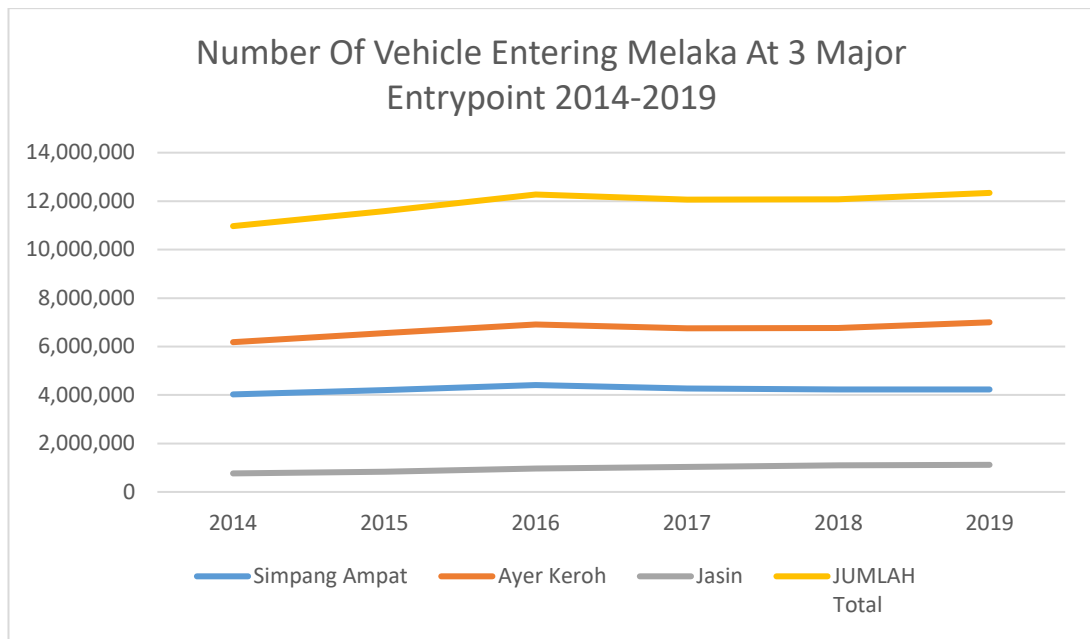


Figure 1.2 Number of vehicles entering Melaka at three major entry points 2014-2019

Source: Department Of Statistics Malaysia 2024

Figure 1.2 shows the number of vehicles entering Melaka through three major entry points, Simpang Ampat, Ayer Keroh, and Jasin, between 2014 and 2019. Over this period, traffic at all three locations steadily increases, with Ayer Keroh and Simpang Ampat seeing the most significant growth. On the other hand, Jasin has consistently lower traffic volumes than the other two entry points. The total vehicle count (Jumlah) across all entry points increased from approximately 12 million in 2014 to over 13 million in 2019, with a peak in 2016 followed by slight fluctuations in the subsequent years. The data presented is up to 2019 because it reflects the last full year of consistent traffic patterns before any potential disruptions, such as the COVID-19 pandemic, which could have significantly impacted vehicle movement.

To worsen the issue, the majority of major roads in Malaysia, particularly access roads leading to city centres, are classified as Level of Service (LOS) E or F, according to The World Bank (2015), which cites data from the Highways Planning Unit, Ministry of Works Malaysia. This classification is consistent with the findings of the Malaysian Road Statistic Book 2023 Edition (Public Works Department Malaysia [JKR], 2023), highlighting significant congestion levels in key urban and interurban road networks. Specifically, these service levels indicate that 38% of access roads experience unstable or forced traffic conditions characterised by frequent delays or complete stoppages for extended durations.

The LOS framework categorizes road performance from A to F. An LOS of A represents free-flowing traffic with minimal delays, while B and C indicate stable flow with occasional slowdowns. By contrast, a LOS of E signifies unstable traffic flow, and F represents forced or breakdown conditions. In Malaysia, the prevalence of LOS E and F on access roads exacerbates daily traffic challenges, particularly in urban centres such as Kuala Lumpur and Melaka.

Melaka, a UNESCO World Heritage City, faces unique challenges as its growing popularity among domestic and international tourists strains its transport infrastructure. Melaka's total federal road length is approximately 319.008 kilometres, predominantly concentrated in urban and suburban areas (Public Works Department Malaysia [JKR], 2023).

Despite this, the current infrastructure remains insufficient to accommodate the increasing influx of vehicles, particularly during peak travel seasons. Combined with daily incoming traffic from adjacent states, this leads to severe congestion at key tourist sites such as Jonker Street and A Famosa.

The implications of such congestion are profound. Prolonged traffic delays directly undermine the tourism experience, a key driver of Melaka's economy. Additionally, the inefficiency of existing transport systems poses a significant threat to the city's goal of sustainable urban development. Enhancing Melaka's viability as a tourist destination must address these transport bottlenecks through strategic planning and investment in alternative mobility solutions, such as e-hailing services and public transport upgrades, where failure to do so risks jeopardizing the city's reputation as a premier tourist destination.

Addressing Malaysia's traffic challenges requires targeted interventions to improve the LOS of major roads, particularly in urban hubs like Melaka. Strategic investments in infrastructure, traffic management, and mobility innovations are essential to ensuring a sustainable and efficient transport system that meets the demands of residents and visitors alike.

Through the Tourism Melaka Authority, the state government has been aggressively promoting Melaka as a tourism destination, both locally and internationally. Key tourist destinations in Melaka include the UNESCO Heritage Site, historical buildings, Recreation, shopping, and food. The UNESCO Heritage site was gazetted in 2012 and has become a significant tourist attraction in Melaka. The surrounding areas, "Core Zone" and "buffer Zone" of the UNESCO Heritage site, approximately 1 kilometre in radius, centring in the 0-mile point of Melaka, has been known as the Central Tourist District (CTD). Most of the POI, dining options and accommodation are within this 1-kilometre radius.

Some researchers have noted that tourist mobility in this CTD is not a significant concern. The closeness of POI within CTD has determined walking as the

primary mode of mobility. A study by Nurul Diyana Md Khairi & Hairul Nizam Ismail (2015a) found that the movement of tourists in this area is highly mobile. Therefore, every POI has a high accessibility level. Tourists tend to flock and move around the place of their stay, according to (Lew & McKercher, 2006a) in their research of modelling tourist movement at host destination. This poses a gap between POIs within the CTD and POIs located outside and at the periphery location regarding tourist mobility and accessibility.

Table 1.1 Key entry point to Melaka and its surrounding areas.

No	Mode Of Transportation	Key Entry Point	Point Of Origin
1	Road and highway networks (Private Cars, Car and Bus Rentals)	North-South Expressway, Federal, and State Trunk Road	Peninsular Malaysia, Singapore, and Thailand
2	Air Travel	Melaka International Airport	Penang and Indonesia
3	Interstate Bus Services	Melaka Sentral	Peninsular Malaysia, Singapore, and Thailand
4	Sea-lanes	Melaka International Jetty	Dumai
5	Rail Services	Pulau Sebang / Tampin Station	South, North and East Coast of Peninsular

. **Source:** findings from Observational studies

Shared mobility, whether E-hailing, carpooling, ride-sharing, bike sharing, and others, complements the existing mode of the public transportation system as a “first-mile” and “last-mile” intervention. The first-mile intervention is where this mode of transportation helps feed the commuters and passenger to the existing public transport

network before their departure to other intercity destinations. The key entry point for Melaka has been identified chiefly through networks of highways and roads, air travel, land-based transport, sea lanes, and rail services. This entry point could benefit from introducing shared mobility, complementing the existing public transportation network.

Meanwhile, “last-mile” intervention complements the existing public transportation network by providing final access to the destination, which is not currently being served or beyond the coverage of the current networks.



Source: (Amir et al., 2014, 2015b; Farhana Ramli, 2013; Ismail & Baum, 2006)

Plate 1.1 Central Tourist District in Melaka

Plate 1.1 above represents a central tourist district in Melaka. A radius of 1 Km, starting at a 0-mile point, is graphically represented on the map to illustrate the CTD of Melaka. This CTD includes the UNESCO Heritage site, Point-of-Attraction (POI), Dining option and most of Melaka’s accommodations facilities. All these are

within walking distance, and tourists enjoy better patronage than other destinations in Melaka (Nurul Diyana Md Khairi & Hairul Nizam Ismail, 2015a).

As mentioned earlier, domestic tourist depends on their private vehicle to get around, and international and outstation tourists are the ones who will use public transport to get around. Due to the disjointed location of the point of interest (POI) within the host destinations, tourist mobility between the central tourist district and the periphery destination depends on the availability of transportation means, either system or network. Major tourist areas, uniquely located in the urban areas, enjoy better patronage, i.e. accessibility due to their proximity to each other and are well-served by a network of public transportation systems. The problem facing tourism planners is getting tourists to other destinations on the periphery networks of the transportation system and network.

The POI for Melaka is limited to this area and has expanded throughout the state. The state of Melaka is divided into three central districts: Alor Gajah, Melaka Tengah and Jasin. In each of these districts, other POI existed. The state tourism promotion agency, Melaka Tourism, has identified vital tourist POI throughout Melaka.

1.2 Problem Statement

Tourists' behavioural intentions regarding using E-hailing services remain underexplored regarding their predicting elements and constructs (Hall et al., 2017; Septiani et al., 2017; Wan Mohamad et al., 2016). Unlike E-hailing, other transportation mode choices for tourists have been adequately researched and studied, such as tourist satisfaction with the transportation system in the host destination (Yap et al., 2008), air travel (Kantawateera et al., 2015; Kaya et al., 2014; Escobar-Rodríguez & Carvajal-Trujillo, 2014), train and rail services (Wang et al., 2010), and land-based transportation (Danielis et al., 2012; Li et al., 2017; Malodia & Singla, 2016; Shaheen et al., 1999), where they covered most often the aspect of inter-destination travel. However, there is a notable gap in the literature concerning adopting E-hailing services, specifically in the context of tourism, particularly in destinations with suboptimal or underdeveloped public transportation systems.

Current research on transportation services has provided valuable insights into broader modes of travel, but the rapidly evolving E-hailing sector demands further investigation, particularly concerning tourists' unique needs and behaviours. Tourists spend a considerable amount of money on travel and at the destination. Most of these expenses are spent on transportation, food, lodging, and services (Amir et al., 2015). Easy access to transportation systems and services is one of the critical considerations for tourists in their destination selection, apart from accommodation and destination choice (Kaya et al., 2014). This is particularly relevant for tourists in urban or destination-based travel, where convenient and flexible mobility solutions, such as E-hailing services, can significantly enhance their experience.

A good transportation network and connectivity at the destination have been determined to be one of the satisfaction criteria noted by tourists (Abd Manaf et al., 2015; Amir et al., 2015; Farhana Ramli, 2013; Zaimah et al., 2015). The transportation network is often associated with accessibility and mobility aspects during travel. Hence, an excellent and well-served transportation network is vital to creating a satisfied tourist (Amir et al., 2016; Kaya et al., 2014; Zaimah et al., 2015). Host destinations often cite three criteria when tourists use public transport: service production, route frequencies, and reliability (Antoniou & Tyrinopoulos, 2013). These three criteria, when met, create a high level of assertiveness towards the host destinations, as discovered by Antoniou & Tyrinopoulos (2013) in their research on the Greek Island of Kos.

However, traditional public transportation systems in many destinations, including Malaysia, are often outdated and insufficient to meet the mobility needs of modern tourists. Not every host destination has a good network of transportation systems. In destinations like Melaka, public transportation has faced significant challenges. Studies have identified issues such as service inconsistency, insufficient coverage areas, and poor quality of service, leading to dissatisfaction among tourists and local commuters (Baharin et al., 2011; Jaafar et al., 2014). The gap in service provision and infrastructure leads tourists to seek alternative modes of transportation like E-hailing, which offers more flexibility, convenience, and reliability compared to traditional transport systems. These challenges are critical to understanding tourists' behavioural intentions regarding adopting these services.

Consequently, public transport's lack of serviceability and quality has made it less attractive to riders, with only a 17% ridership level (Chiu Chuen et al., 2014).

When the demand is low, the number of services will be reduced, as it is not economical to provide them anymore. This has led to the problem of the undersupply of public transport services in those destinations and the mismatched demand and supply for public transportation. Without proper transportation in the host destination, tourist travel patterns are limited to specific geographical areas, thus limiting their mobility. Travellers will restrict their mobility to areas where transport is easy or even places where walking distance is part of the destination requirements. Central tourist districts will see an influx of travellers, while outskirts or destinations outside the main tourist areas will see lower patronisation of tourists.

E-hailing, ridesharing, and bike sharing are some of the latest alternative modalities tourists and travellers use. This innovative modality, mostly app-based, poses a Unique Selling Proposition (USP) as it is considered an on-demand service, no longer bound by rigid scheduling and route designation. It provides an alternative to the traditional mode of transportation in the city. However, despite the growing popularity of these services, there remains a significant gap in understanding what drives tourists' acceptance and use of E-hailing in tourism settings. Acceptance of this alternative mode of transportation among tourists has yet to be measured thoroughly and comprehensively in previous studies. Furthermore, studies of transportation technology acceptance are scarce and inconclusive (Ghazizadeh et al., 2012; Madigan et al., 2016; Merat et al., 2016), particularly concerning tourists (Wan Mohamad et al., 2016; Zmud et al., 2016).

This gap in the literature directly informs the development of this study's research framework, which adapts the Unified Theory of Acceptance and Use of Technology (UTAUT) model to explore the specific factors influencing tourists'

adoption of E-hailing services. The UTAUT model includes critical constructs such as Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions, which are crucial in understanding the behavioural intentions of technology users. However, to suit the context of tourism, it is necessary to modify the UTAUT model to account for unique variables relevant to tourists' experiences. Additionally, including demographic moderators such as Age, Gender, Experience, and Voluntariness Of Use further refines the model, enabling a more precise understanding of tourists' diverse behaviours and preferences when using E-hailing services.

Solutions to this problem lie in adopting technology-utilising E-hailing services to supplement traditional public transport systems. E-hailing can effectively improve accessibility, enhance mobility, and increase tourists' satisfaction with transportation services within the destination. Thus, the current research seeks to address the gaps identified in the literature by focusing on these constructs and refining the model to explain and predict tourist adoption of E-hailing services. The insights gained from this study can assist local authorities, tourism planners, and service providers in improving the overall transport infrastructure and enhancing the experience of tourists at the destination. Identifying these gaps forms the basis for the research questions and objectives outlined in this thesis, which aims to investigate the critical drivers of E-hailing service adoption in tourism destinations such as Melaka.

1.3 Gaps And Novelty Of The Research

This study aims to fill several critical gaps in the existing literature on how tourists adopt E-hailing services, particularly in destinations like Melaka, where public transportation systems are less developed. Much research has focused on how people in major cities use E-hailing, but there is little understanding of how tourists with different needs and behaviours engage with these services, especially in places with fewer transport options. This study will directly tackle this issue by looking at how tourists, as opposed to residents, use E-hailing to improve their mobility in Melaka.

Another gap this research will address is the lack of studies applying the Unified Theory of Acceptance and Use of Technology (UTAUT) in the context of tourism. While UTAUT has been widely used across various fields, it has not been fully explored in the tourism industry, especially in developing countries like Malaysia. The novel aspect of this study lies in its application of the UTAUT framework to examine how tourists decide to use E-hailing services. This study will explore how factors like Performance Expectancy (how useful people think the service is), Effort Expectancy (how easy it is to use), Social Influence (what others think), and Facilitating Conditions (availability of support) shape tourists' decisions to use E-hailing services (Venkatesh et al., 2003). Additionally, the study will take a deeper look at how demographic factors like Age, gender, and prior experience influence these decisions, a topic that has not been explored much in the current tourism literature (Al-Gahtani, 2016).

Most previous research focuses on general populations and overlooks how specific tourist demographics impact E-hailing adoption. Tourists, for instance, will likely prioritise convenience and ease of use over long-term considerations since they

are only at the destination for a short time. This study will explore how different demographics, like gender, Age, and prior experience with E-hailing, affect their willingness to use these services (Venkatesh et al., 2003; Rahim et al., 2020).

In addition, this research contributes to the limited understanding of how shared mobility solutions, like E-hailing, can improve tourist experiences in developing countries. While shared mobility services have been extensively studied in cities of developed countries, their role in enhancing tourist mobility in less-developed regions remains underexplored. This study's findings will offer new insights into how E-hailing can be better integrated into the tourism infrastructure of places like Melaka, improving accessibility and overall tourist satisfaction (Shaheen & Chan, 2015; Gutierrez & Miravet, 2016).

Table 1.2 Preliminary Research Gaps

STUDY	KEY FOCUS	IDENTIFIED GAPS	CURRENT STUDY FOCUS
Venkatesh et al. (2003)	User acceptance of information technology using UTAUT	Applied UTAUT broadly across general populations but lacked focus on tourism or E-hailing services.	It applies UTAUT specifically to tourism and e-hailing in developing regions like Melaka.
Shaheen & Chan (2015)	Shared mobility and its impact in urban settings	Focused primarily on urban commuting in developed countries.	Examines shared mobility (E-hailing) in tourism settings, particularly in a developing region like Melaka.
Escobar-Rodríguez & Carvajal-Trujillo (2014)	Online purchasing behaviour in tourism with UTAUT	Did not explore tourist mobility or E-hailing services.	Focuses on tourist adoption of E-hailing services, particularly the factors influencing their decisions.

STUDY	KEY FOCUS	IDENTIFIED GAPS	CURRENT STUDY FOCUS
Gutierrez & Miravet (2016)	ICT's role in enhancing tourist mobility	There is limited focus on E-hailing and how tourists use technology for transportation in less developed areas.	It focuses on how tourists adopt E-hailing services and infrastructure challenges in developing regions.
Al-Gahtani (2016)	Technology adoption and demographic factors	It focused on demographic factors in general technology adoption but not on tourists and e-hailing.	Explores how tourist demographics such as Age, gender, and prior experience affect the adoption of E-hailing services.
Rahim et al. (2020)	Tourist adoption of mobile travel apps using UTAUT	Focused on travel apps, not E-hailing services, and lacked depth in exploring tourism-specific mobility challenges.	Expands the UTAUT model to investigate tourist-specific mobility challenges in E-hailing adoption.

The previous studies shown above have made essential contributions but have left critical gaps that this research seeks to fill. The lack of focus on tourists, limited attention to E-hailing, and insufficient consideration of developing regions have all been crucial motivators for this study. By addressing these gaps, the current research advances the theoretical understanding and offers practical insights into how E-hailing services can enhance tourist mobility, particularly in developing regions like Melaka. This progression from earlier studies to the current one reflects a necessary evolution in how we understand and apply technology adoption models in tourism, demonstrating that a more focused and context-specific approach is essential for meaningful insights and impactful outcomes.

The work of Venkatesh et al. (2003) introduced the Unified Theory of Acceptance and Use of Technology (UTAUT), which has since been widely adopted

to explain technology acceptance across various fields. However, their model, while comprehensive, was primarily designed to explain technology adoption in general populations. This broad application creates significant limitations when applied to niche contexts, such as tourism, where tourists behave differently from regular users due to their unfamiliarity with local environments and specific travel-related needs. The original UTAUT model fails to account for these behaviours, creating a gap in applicability to tourism and E-hailing services. The current study addresses this by tailoring UTAUT to tourist mobility, particularly in regions with underdeveloped public transportation, such as Melaka. This recalibration is essential to ensure the model's relevance to tourism, marking a significant evolution from the earlier work.

In their study on shared mobility, Shaheen & Chan (2015) focused on urban commuting in developed countries, providing valuable insights into the impact of shared mobility but inadvertently restricting their research to these settings. By doing so, they created a significant blind spot: the application of shared mobility, such as E-hailing, in less-developed tourism destinations where infrastructure is limited and tourists have different mobility needs. This urban-centric approach overlooks the unique challenges of tourism in developing regions. The current study critiques this narrow perspective, shifting the focus to E-hailing within a tourism context. It argues that shared mobility's impact on tourist mobility in developing regions like Melaka could be even more transformative than in urban settings, thus making it an area of study that requires dedicated exploration.

Similarly, Escobar-Rodríguez & Carvajal-Trujillo (2014) applied UTAUT to examine online purchasing behaviour in tourism, introducing the model to the sector. However, their research neglected an essential aspect of tourism: how tourists use

transportation technologies, such as E-hailing, to navigate their destinations. This omission is significant because transportation is a fundamental element of the travel experience. The current study builds on their work by focusing on how tourists adopt E-hailing services, explicitly investigating the factors influencing these decisions. This approach offers a more comprehensive understanding of technology adoption in tourism, filling a critical gap left by their earlier focus on purchasing behaviour.

Although Gutierrez & Miravet (2016) explored the role of ICT in enhancing tourist mobility, their limited attention to E-hailing services, particularly in less-developed areas, represents a significant gap in the literature. Developing regions often lack sufficient transportation infrastructure, making alternatives like E-hailing crucial for improving tourist access. The current study critiques this oversight, arguing that E-hailing is vital in enhancing mobility in these regions. Focusing specifically on tourist adoption of E-hailing services in a developing region like Melaka, this study provides new insights into how technology can address transportation challenges that tourists face, which Gutierrez & Miravet did not fully explore.

Al-Gahtani (2016) investigated demographic factors in technology adoption but did not apply these insights to the tourism sector. This is a significant gap because tourists, compared to general technology users, may have different needs and behaviours based on demographic factors such as Age, gender, and prior experience. The current study builds on Al-Gahtani's findings by focusing on how these demographic variables influence tourist behaviour in adopting E-hailing services. This targeted focus allows for a deeper understanding of how different groups of tourists interact with transportation technology, offering more nuanced insights than those found in previous research.

Lastly, Rahim et al. (2020) examined mobile travel app adoption among tourists, using UTAUT as a framework. While their study provided valuable insights into the general adoption of travel apps, it left unaddressed the specific mobility challenges that tourists face, especially concerning E-hailing services. Since transportation is central to the tourist experience, Rahim et al.'s omission of this aspect is a critical gap. The current study seeks to fill this void by expanding the UTAUT model to include E-hailing services, specifically focusing on how tourists in Melaka overcome mobility challenges. This broader scope provides a complete understanding of how technology can enhance tourist mobility, addressing gaps left by previous research.

The enhancement to the model proposed in this study builds upon the foundational frameworks referenced, particularly the Unified Theory of Acceptance and Use of Technology (UTAUT), by adapting and contextualizing it for the unique domain of tourism mobility and e-hailing services in Melaka. The refinement addresses theoretical and contextual limitations identified in the literature, offering a more comprehensive framework that aligns with the specific challenges and needs of the tourism industry.

One of the key alterations is the contextualization of UTAUT constructs for tourism mobility. Seminal studies by Venkatesh et al. (2003) primarily apply UTAUT to workplace or educational settings, where technology adoption is driven by operational efficiency or institutional requirements. This study extends its applicability by incorporating tourism-specific constructs, such as accessibility and mobility, into the framework. These additions address the unique challenges tourists face, including

navigating peripheral destinations and first-mile/last-mile gaps in transportation, which were not explicitly explored in earlier UTAUT applications.

Another significant improvement lies in the expanded role of moderators. While UTAUT identifies gender, age, experience, and voluntariness as moderators, this study delves deeper into their contextual relevance for tourism mobility. For instance, the study examines how gender and age influence tourists' perceptions of performance expectancy and facilitating conditions, offering insights into demographic variations that affect technology adoption. This approach aligns with Khan and Woosley's (2011) emphasis on the importance of demographic factors but extends it to the tourism domain, where unique travel-related considerations influence user behaviour.

The polished models suggested in this thesis synthesize constructs from other theoretical frameworks to enhance UTAUT's explanatory power. For example, performance expectancy in UTAUT is analogous to perceived usefulness in the Technology Acceptance Model (TAM) and relative advantage in the Diffusion of Innovation Theory (IDT) (Samaradiwakara & Gunawardena, 2014). By integrating these overlapping constructs under UTAUT, the study provides a unified perspective on how tourists perceive the benefits of e-hailing services. Similarly, effort expectancy in UTAUT captures the essence of ease of use from TAM and DOI, further refining the framework to address usability concerns specific to tourists.

Furthermore, the improvement incorporates practical considerations that bridge the gap between theoretical constructs and real-world applications. For example, the study emphasises facilitating conditions, such as infrastructure availability and technological support, in shaping tourists' behavioural intentions. This

focus is particularly relevant in Melaka, where limited public transportation options highlight the need for alternative mobility solutions. By addressing these contextual factors, the study contributes actionable insights for policymakers and e-hailing operators, demonstrating how theoretical models can inform practical strategies for sustainable tourism development.

This thesis also plans to validate UTAUT in a tourism-specific setting, addressing a critical gap in the literature. Previous studies on technology adoption in tourism have often relied on narrower frameworks, such as TAM, which focus primarily on perceived usefulness and ease of use (Davis, 1989). By applying UTAUT to the context of e-hailing services, the study captures a broader range of influences, including social norms and facilitating conditions, that are critical for understanding technology adoption in a tourism environment. This comprehensive approach enhances the predictive power of the framework, as evidenced by UTAUT's higher explained variance ($R^2 = 0.69$) compared to other models (Venkatesh et al., 2003).

The model enhances the theoretical foundation provided by UTAUT by integrating tourism-specific constructs, expanding the role of moderators, synthesizing complementary frameworks, and emphasising practical applications. This approach addresses gaps in the existing literature and provides a robust framework for understanding and promoting e-hailing adoption in tourism, particularly in destinations like Melaka, where mobility challenges persist. These refinements underscore the model's contribution to theoretical advancements and real-world solutions in sustainable tourism.

1.4 Operational Definition

The following terminology is defined for this research to understand the proposed research better. The terminology identified as central to the overall discussion on the subject matter will be used throughout this study. To ensure the accuracy of the terms given, all definitions of ridesourcing will be based on official documents released by the Transportation Sustainability Research Centre, the University of California Berkeley (TSRC-UC Berkeley), with the cooperation of the California Department of Transportation (CALTRANS) (S. Shaheen et al., 2015). Other sources will be cited accordingly.

- a) **Sharing Economy** – The sharing economy encompasses a collection of practices, models, and platforms facilitated by technology and community engagement. It enables individuals and companies to share access to products, services, and experiences partially. This encompasses non-profit and for-profit platforms that have evolved from the initial concept of a pure sharing economy and peer-to-peer and non-profit organisations.
- b) **Collaborative Consumption** - economic model in which consumers use online tools to collaborate on owning, renting, sharing, and trading goods and services
- c) **Mobility** – the ability to move around within the destination using multiple modes of the transportation system and networks
- d) **Shared Mobility** - the shared use of a vehicle, bicycle, or another low-speed mode
- e) **Accessibility** – the ability to access any destination and point of interest in the host destination