

## The Concept of Smart Cities for Sustainable Tourism Development through Tourists' Behaviour in Thailand

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### Abstract

Tourism development is a significant trend in tourism worldwide, especially in Thailand. There are both positive and negative impacts on tourism destinations caused by increasing tourist arrivals, and sustainable tourism development is a linkage to the economic, social, and environmental aspects. Tourist behaviour is an important factor for future planning, management, and development of tourism destinations. The theory of planned behaviour (TPB) and the theory of reasoned action (TRA) are used to explain tourists' behavioural intent. A systematic literature review and thematic analysis of relevant peer-reviewed articles with the criteria of inclusion and exclusion were employed. The discussion and conclusions explain that sustainable development is needed in tourism, especially city management, as tourists consider the main cities as gateways to travel within a country, and tourist behaviour impacts the long-term sustainable development of tourism destinations. Limitations and recommendations for future research are also discussed.

**Keywords:** Tourist Behaviour, Sustainability, Development, Sustainable Development, Smart City Tourism, Asian Tourists

### Introduction

Tourism is documented in the history of humankind as the largest migration, as it involves more than 10 per cent of the world's population yearly. The potential of tourism is desired by countries worldwide in order to generate income and economic growth, including

Thailand, as the country's income significantly depends on tourism, which is expanding fast and is predicted to double in the next 15 years (Sharpley, 2020).

According to the World Tourism Organization (2020), global international tourist arrivals have continually grown over the past several decades and highlighted the report of 1.5 billion international tourist arrivals in 2019, which is expected to reach 1.8 billion by 2030 (UNWTO, 2019). In recent decades, tourism has been the most rapidly growing industry in the world, and as an important tool that has contributed financially to tourist destinations such as cities as well as the private sector, it has become one of the most important factors for a country's economic growth. Likewise, the tourism sector in Thailand generated up to 1.9 trillion Thai baht of the country's revenue in 2019, with 39.7 million international tourist arrivals (Ministry of Tourism and Sports, 2020).

The conceptual framework of tourism planning and development has undergone a paradigm shift due to the emergence of the sustainable development concept. Indeed, the paradigm of sustainability is supported both directly and indirectly by tourist behaviour participation as the main element (Thacker et al., 2019; Silvestre and Țîrcă, 2019). The sustainable tourism paradigm aims for a balance between the traditional 'utility paradigm' and its derivative, 'social exchange theory, which focuses on the trade-off between economic costs and benefits, and the new environmental paradigm (NEP), which is focused on the preservation/conservation of all-natural resources and enhancement for new generations to come in terms of the well-being of communities (Xu et al., 2020).

The impact of tourist attitudes and behaviours toward the tourism perspective has been studied in tourism research for more than 30 years. The early studies focused on 'tourism impacts' resulting from tourist attitudes and behaviours. The findings from the paradigm summarised in this literature indicate that tourism in a wide range of countries seems to have a positively disposed impact on society. On the other hand, the negative impacts of tourism are caused by the tourists at the destination as well, despite the specific concerns varying with each destination. There are certainly exceptions to the overall positive behaviour of tourists as the study by Levitt et al. (2019) demonstrated; however, ordinarily, tourism as an industry is viewed positively. Alternatively, other research studies have focused on communities that have succeeded with tourism development or are already positively inclined toward tourism development as evidenced by their involvement in rural development programs.

Most of the research studies on tourism have concentrated on the natural resources and environmental protection of the destination, although the majority of the world's

population lives in the main urban areas and travel often happens within cities (World Tourism Organization, 2020). According to the United Nations, in 2015, 54 per cent of the world's population lived in urban areas and, by 2030, this share is expected to reach 60 per cent (UNWTO, 2019). Moreover, the smart city concept has become one of the innovations in the tourism sector that has had the most rapid growth in the world. However, managing a smart city is becoming complex and highly challenging because of rapid systematic changes in metropolitan areas and public concerns. Thus, other research focuses on its encompassing numerous stakeholders' involvement and activities.

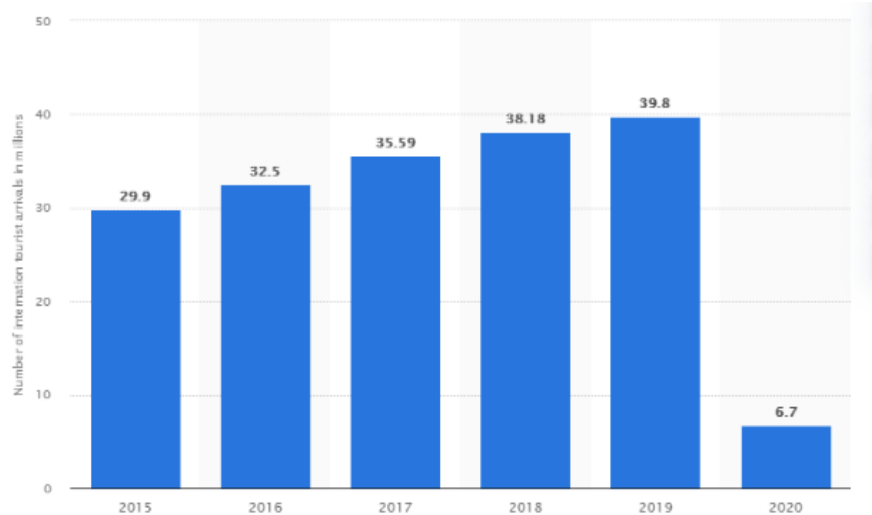
Previous studies have revealed, overall, that tourists' behaviour have a positive impact on tourism (Meschini et al., 2021; Lavitte et al., 2019). Tourists generally express that they feel that tourism benefits provide positive outcomes of economic growth, more recreational and relaxation park initiatives, improved well-being and quality of life, improved images of destinations, encouragement of cultural activities (Najib et al., 2020; Meschini et al., 2021), and other benefits. Thus, the objective of this study is to examine and investigate tourist behaviours towards tourism, with humankind as the fundamental cause, and how they are related to the development and sustainability of tourism. The smart city is the most common type of tourism occurring in the main arrival cities, and to develop it in terms of sustainability, technology plays an essential part to drive the concepts. Hence, tourist behaviour towards destinations also influences smart cities to respond to their needs.

The term 'smart city' seems a new phenomenon in tourism research because smart tourism has been vastly studied by focusing on tourist development. "Smart Tourism" research can be categorised as the study of the transformation from conventional tourism to becoming smarter by using technology, innovations, and artificial intelligence to drive it, whilst smart city research in particular aims to develop technology, innovations, and infrastructure for residents in the city (Koo et al., 2019). Simply stated, smart tourism studies focus on tourists, whereas smart city studies focus on residents. Nonetheless, combining these two paradigms in this study provides insights into smart cities and tourism for long-term sustainable development, which is possibly influenced by tourists' behaviour.

The focus is on the Asian tourists in this study as the **number of Asian visitors' arrivals to Thailand** is expected to rise by 5 per cent from 2018, and Asian visitors provide the largest amount of tourism revenue for Thailand. The contribution of China, only one country, can certainly not be disregarded, as strategically, they brought in revenue of 543.707 billion Thai

baht in 2019. Therefore, clearly, China and the other countries in Asia comprise the most important region for the Thai tourism industry (Ministry of Tourism and Sports, 2020).

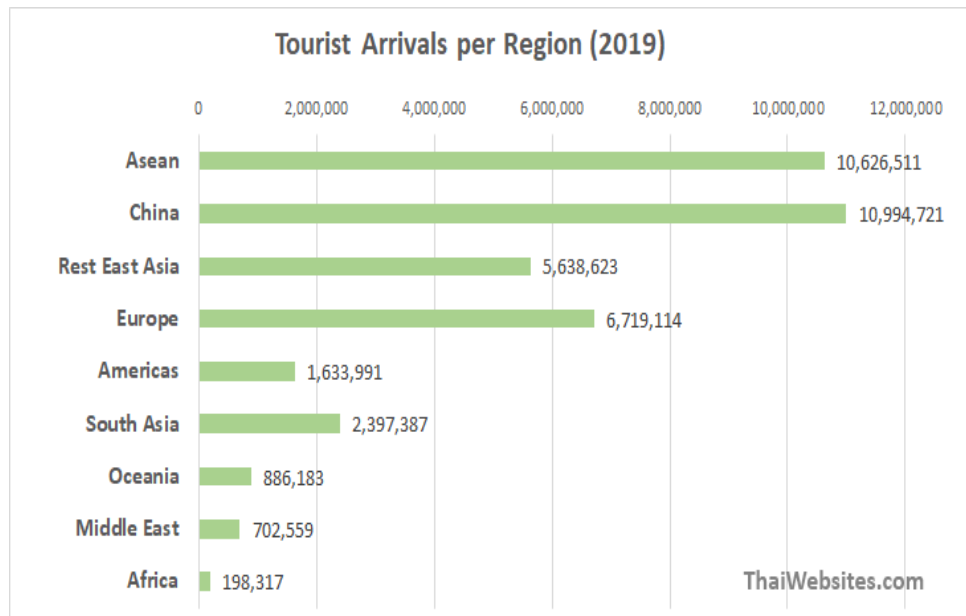
Asian tourist behaviour is often characterised by essentialist terms such as Asians are collectivistic and hierarchical (Oh et al., 2014). Asian tourists respond to circumstances and can react through a range of social behaviour even when they travel. Because of the rapid growth of tourism, especially in the region of Asia, which is one of the largest contributors to the world's tourism, Thailand depends heavily on Asian tourists, as per Figure 1.



**Figure 1:** Number of tourist arrivals in Thailand 2015-2020

Source: Bank of Thailand, 2015-2020 Tourist Arrival Statistics

Figure 1 shows the number of tourist arrivals in Thailand in five consecutive years from 2015 to 2020. However, the year 2020 was affected by the unprecedented pandemic of COVID-19; hence, there was a drastic drop caused by this phenomenon. The analyses of this study, however, are based on 2019 with the total number of international tourist arrivals of 39.8 million (Vithayaporn, 2021). Asian tourists contributed up to 30,359,801 tourists, accounting for 76.13 per cent of the total arrivals in 2019. Figure 2 illustrates the number of international tourist arrivals by region, and Figure 3 presents the top ten markets of tourist arrivals, with eight Asian countries contributing to the total number of international tourist arrivals in 2019.



**Figure 2:** Tourist arrivals per region in 2019

Source: ThaiWebsites.com

Figure 2 illustrates the number of visitor arrivals to Thailand in 2019 by region, showing the significant number of Asian tourists that contributed to tourism in Thailand reaching 76.13 per cent of total arrivals.

## Research questions and objectives

The main question is what factors affect Asian tourists' behaviour towards smart cities for sustainable development. Hence, the specific objectives are:

1. To examine the factors affecting tourists' behaviour towards smart cities.
2. To investigate the concept of the smart city for sustainable tourism development.

Subsequently, the theory of planned behaviour is presented, and Asian tourists are the target of the study.

## Literature Review

### Sustainability

The concept of sustainable development is rooted in the goal of sustainability, which originated in the environmental paradigm and continued to grow to prominence in the 1970s. The explicit concept of sustainable development was first introduced by the International Union for the Conservation of Nature and Natural Resources in its World Conservation Strategy. Moreover, the Brundtland Commission, in a report in 1987, defined the term 'sustainable

development’ as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (Rosati and Faria, 2019). Sustainable development is the process orientation, while sustainability is the philosophy. Elmqvist et al. (2019) stated that the distinct idea of sustainability originated in the middle of the 19th century, which can be first traced in Europe and the United States, as a phenomenon responding to the environmental problems created by industrialisation and urbanisation. Tourism has vastly risen in conjunction with these developments, firstly in the Western context after World War II, and this reflects the philosophies of this industrial-era paradigm. Since then, the study of sustainable tourism development has been prevalently related to the philosophy of sustainability.

### **Development**

The term ‘development’ was first described by Welch in the year 1994 as being an ambiguous one that is applied for the measurement of both the process by which a community or country improves from one level to another in terms of the quality of its status and the goal of that process, which is that the community’s development process is able to achieve a developed state or condition (Shi et al., 2019). Nevertheless, development does not comprise only one process or series of events, nor does it refer to a single unchanging condition. Therefore, development as a term may be regarded as ‘bereft of precise meaning and little more than the lazy thinker’s catch-all term, used to mean anything from broad, undefined change to quite specific events’ (Shi et al., 2019). It is an extension of the concept of development (Whitley et al., 2019). Generally, in the Western context, it is considered as the modernisation that results from economic expansion (Whitley et al., 2019). In fact, the differences between development and economic growth are widely regarded as minimal and the two processes can be seen as being nearly identical.

However, the fact that the policies of economic growth often fail to solve sociological problems by increasing GDP per capita should be recognised, whereas the aim of economic development to enhance the industrial sector of the country to another level is redefined more broadly (Fisher and Yan, 2018). Mhatre et al. (2021) explained that ‘Development can be properly assessed only in terms of the total human needs, values, and standards of the good life and the good society perceived by the very societies undergoing change’. Therefore, the issue that needs to be addressed is: how can development be achieved through the growth of tourism? The potential responses to this approach can be revealed through a brief review of development theory.

This means that tourism's perceived contribution to development, such as foreign exchange earnings, the multiplier concept, and backward linkages throughout the economy, are clearly included within the theory. It is assumed that development occurs due to the economic benefits that result from the growth impulses (the tourism sector) and growth poles (resorts). Thus, although currently, the principles of sustainable tourism are broadly accepted, the role of tourism in development remains justified to a large extent based merely on the benefits of economic growth, which contrasts with more recent development theory (Mhatre et al., 2021).

### **Sustainable Development**

It was further emphasised by the World Commission on Environment and Development in the year 1987, which stated that sustainable development does not manifest as a static balanced state but is instead a process of dynamic changes that 'are all in harmony and enhance both current and future potential to meet human needs and aspirations' (Sharpley, 2020). Therefore, it is useful to consider 'sustainable development' as being more oriented toward the process and concerned with changes that are managed in order to provide improved conditions for the communities affected by this development. Similarly, the definition for sustainable tourism is provided as all types of tourism (both conventional and alternative) that are compatible with or contribute to sustainable development. It should also be mentioned that 'growth' is not necessarily involved in development because it is essentially a process of achieving 'specific social and economic goals which may call for a stabilisation, increase, reduction, change of quality or even removal of existing products, firms, industries, or other elements' (Sachs et al., 2019; Zinina and Olentsova, 2020). The willingness to pay for protecting the environment (Grubler et al., 2018), the marketing of environmentally friendly goods, and green consumerism are the successful proposals of sustainable tourism products that respond to the behaviour of tourists who are willing to engage in environmentally responsible behaviours (Daly, 2017).

### **The link between the effects of tourist behaviour on sustainable tourism development**

The theory of reasoned action (TRA), first studied by Ajzen, indicates that the most important determinant of a person's behaviour is behavioural intent (Ajzen, 2020), which reflects the willingness to perform a certain act and is determined by individual attitudes and subjective norms. Behaviours represent an individual's evaluation of the possibilities to perform various behaviours. Consequently, subjective norms reflect the individual's willingness to comply with the desires of the relevant social actors (Lortie and Castogiovanni,

2015), and result from normative beliefs according to social and moral values, balanced by personal motivations. TRA is related to tourist intention to perform behaviours during their trip towards tourism products and the overall destination, the smart city, in this study.

The TRA was developed further into the theory of planned behaviour (TPB) by including the concept of perceived behavioural control as a determinant of behavioural intent (Ajzen, 2015; Ajzen, 2020) based on the individual evaluation of the opportunities and resources available for performing behaviours. The TRA and TPB are among the most utilised models for explaining behaviours and beliefs related to ecological behaviours (Hsu and Huang, 2012), travel choices, willingness to pay for environmental protection (Conner, 2020), the marketing of environmentally friendly products (Ajzen and Schmidt, 2020), and green consumerism. In tourism, they are used for explaining the choice of destinations (Hsu & Huang, 2012), tourist segmentation and satisfaction with holiday experiences (Steinmetz et al., 2016).

Studies presented in the previous section of this article indicate that the positive behaviours of tourists towards environmentally benign holiday products and services are not reflected in their actions. Tourists' choice of natural or cultural holiday products may be easily confused with a willingness to protect these tourist attractions. Although related, these two are not equivalent as landscapes and the environment are the motivation for people to travel and sometimes an attraction, for example, deserts, tropical forests, and mountains. For others, climate and landscape are criteria in selecting of one-holiday package instead of another (Ajzen and Schmidt, 2020).

Some tools for breaking such social traps and leaning the balance in favour of environmentally responsible behaviour are:

1. Increasing the costs of environmentally destructive behaviour (fines and fees).
2. Decreasing the costs of environmentally proactive actions.
3. Providing education to make people more aware and show how they can contribute.
4. Giving feedback to people about the consequences of their behaviour.
5. Organising available resources for better distribution.

According to Egelman and Peer (2015), behavioural intention, which is the immediate antecedent to behaviour, has variations attributable to (a) evaluative beliefs, (b) social factors that provide a set of normative beliefs, and (c) situational factors. Moutinho's explanation seems to mainly come from the theory of reasoned action (Ajzen and Schmidt, 2020; Steinmetz et al., 2016), whereby behavioural beliefs are postulated to be the underlying influence on an individual's behaviour toward performing a behaviour, whereas normative



beliefs influence the individual's subjective norm about performing the behaviour. The environmental situation of many destinations demands quicker and more radical changes in tourist behaviour, which may be achieved using stronger mechanisms (taxes and fees) and incentives. Limited understanding of the dynamics between different determinants of tourists' sustainable behaviour is a challenge that hinders sustainable progress. In pursuit of sustainable tourism, both industry and the authorities share the challenges of providing incentives for tourists to adopt sustainable behaviours.

### **Why do Asian tourists have an impact on smart cities in Thailand for sustainable tourism development?**

This industry has performed favorably as reflected by the growth of tourist arrivals and tourism receipts. Tourist arrivals and receipts from Asian countries are outstanding not only in terms of value but also in percentage growth (Kadir et al., 2013). This could be explained by the fact that Asian countries are located relatively near to Thailand, and hence, there are relatively low travel costs. Moreover, these countries also have significant trade relations with Thailand; hence, there is a further increase in travel between countries in the region. As Thailand took over the ASEAN chair for 2019, various opportunities were opened for hospitality-related businesses to attract tourists from ASEAN and Asian countries. These included sales of tourism-related products and services and a chance to cooperate with neighboring countries to develop the best routes for international tourists, whether they are from Asia or other parts of the world.

Under the Asia-Pacific Economic Cooperation (APEC) pillar, tourism is one of the priority sectors for integration through collaboration among country members. Tourism represents an important component of the economy of all Asia-Pacific countries, especially in Japan, Korea, Australia, Singapore, Cambodia, the Lao PDR, Malaysia, Philippines, and Thailand, where tourism accounts for more than 10 per cent of GDP<sup>1</sup> and provides significant employment in their economies. According to the WTTC, in 2013 the Asia-Pacific member states generated US\$112.6 billion in tourism, exports or foreign exchange earnings and \$294.4 billion in value-added linked to the travel and tour operations, shopping, entertainment, transportation, and various other tourism-related service occupations and productive sectors, accounting for 12.30 per cent of regional GDP (Walton, 2018).

In addition, because the economy continues to grow within the region by using tourism as the key driver, the traits of tourists related to tourism must not be overlooked as the tourist is the end consumer to use all kinds of tourism products, and the sustainability of tourism

depends on tourist behaviours to conserve or damage the tourism products. As Thailand received over 30 million Asian tourists and the member countries of Asia play a crucial role in promoting Thailand's tourism strategic planning, this plan is not only for the Thailand context, but it can be extensively applied to all Asian countries. The major source market is intra-Asia with a 76.13 per cent share of total international visitor arrivals to Thailand in 2019. Hence, most Asian countries should continue to study the behaviours and attitudes of Asian tourists related to sustainable tourism development (Ministry of Tourism and Sports, 2020).

Tourism in the city can be transformed into a smart system the city through investment in massive resources, for example, information technologies are likely the key factor for smart city destinations' competitiveness. Moreover, cities around the world recognise the smart city concept as it continues to grow. Several cities around the world face challenges to the design and development of the urban areas for better living and visiting (Li et al., 2017). The ideation of a smart city is to optimise its infrastructure to ensure the quality of life for citizens and tourists visiting the city, including transportation, water and power supply, waste management, and efficient urban mobility.

The definitions of 'smart city' have been vastly diverse depending on the meanings of the word 'smart', which can be interpreted as knowledge city, intelligent city, ubiquitous city, sustainable city, digital city, etc. (Zubizarreta et al., 2016). There are several definitions of the smart city existing; however, no specific definition has been universally acknowledged yet. According to scholarly analysis, it has emerged that the terms 'smart city' and 'digital city' are prevalently used to define the terminologies particular in the literature to indicate the smartness of a city.

The smart city concept represents the convergence of information communication technology (ICT) and infrastructure. It indicates new tourism braced by integrated efforts at the city destination (Chan et al., 2019). Accordingly, a large amount of literature indicates that urbanisation is the key element to creating smart cities in modern cities around the world. This has been foreseen with 25 smart cities emerging in 2015, predominantly in North America and Europe; however, the number of smart cities in Asia also continues to grow.

On the other hand, regarding smart tourism that basically focuses on tourists' development, Zhang et al. (2012) stated that smart tourism is elementally comprised of three specific components, which are cloud services, the Internet of Things (IoT) and the End-user Internet Service System. Gretzel et al. (2015) defined 'smart tourism' as the destinations effectively using all the various platforms to create unique experiences for tourists and visitors,

especially information communication technology. Likewise, Sigala and Marinidis (2012) pointed out that smart tourism is characterised by digitisation processes and services and a higher level of interface between the tourists and the destination, which involves the local community and government among other sectors.

It is extensively studied smart tourism development in the sense of destination branding strategy to become a smart destination (Gretzel and Collier de Mendonc, 2019). Brand elements initiate the strategies of the current smart destination brands; however, smart tourism is largely embedded within the smart city. Simply put, a smart city facilitates smart destination brand initiatives. Cooperation from stakeholders is, therefore, necessary to implement technology interfaces in the city to strategic branding at the destination that includes smart cities tourism.

Hess (2019) pointed out that Bangkok, the capital of Thailand, is one of the most visited city destinations in the world, ranking no. 1 in 2019 according to the Mastercard Global Destination Cities Index. With the number of 22.3 million tourist arrivals affecting Bangkok in terms of smart city tourism, in order to sustain this smart city tourism, tourists play a vital role in contributing during their stay; hence, this study focuses on tourists' behaviour towards smart city tourism in the Asian tourist context.

In the authors' point of view, smart cities, and smart tourism, based on the literature, are seemingly related to the information technology, information communication technology (ICT) and digitalisation implemented to optimise the city as smart. However, developing the infrastructure system is also needed to be a smart city in response to the demand of tourists. Similarly, tourist behaviour requires paying attention when using the infrastructure during their trip by following the instructions, complying with the policies, and avoidance of damaging any kind of tourism product.

## **Methods and resources of this study**

Brau and Clark (2012) developed a thematic analysis approach in the year 2006. It is described as a simple theoretical and accessible interpretative approach to qualitative methods that facilitates the identification and data analysis of patterns or themes in each research work. For this paper, the scope of the search in the literature review was determined, and the data were collected from diverse sources of peer-reviewed papers and practitioners, particularly online channels, for example, Google Scholar, Wiley Library and Harvard Library, along with different databases such as Scopus, WOS, EBSCO and SSCI from the various

publishers, including Emerald, Sage, and Elsevier, to search for the relevant context and data, using content analysis and synthesis techniques. A specific 10-year period of searching from 2012 to 2022 was used to explore throughout the 21<sup>st</sup> century as the most up-to-date research in the study of tourism was conducted from then until the current time. The scope of the relevant topics was used for the search, beginning with the titles/terms of “tourists’ behaviour towards tourism development”, “smart city development”, “sustainable tourism development” and “Asian tourists’ behaviour towards smart cities in the context of Thailand” as well as the current trends of smart cities and smart tourism in the world, including Thailand. Finally, all the data and contents were analysed; therefore, the study’s workflow chart is presented accordingly:

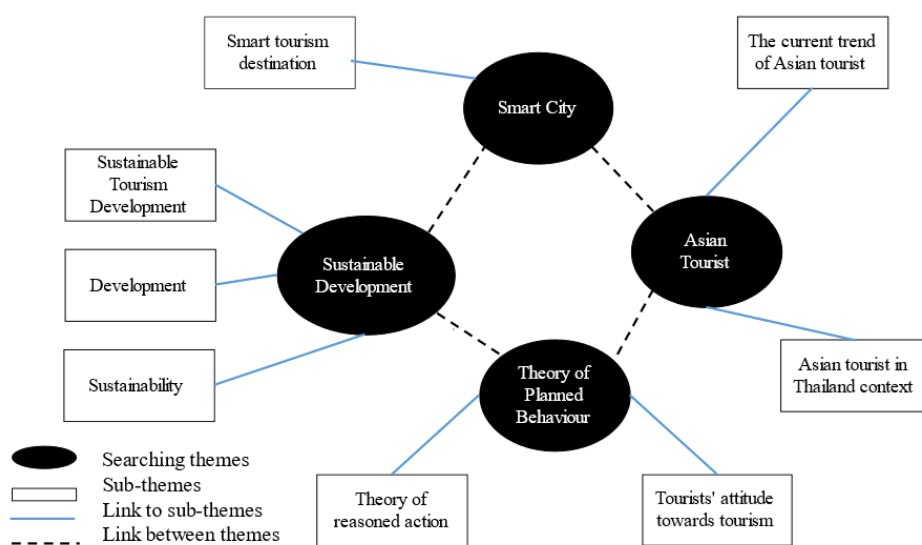


Figure 3: Initial Thematic Analysis

To align with the categorisation criteria to extract the data, there is alignment with the inclusion and exclusion criteria, in which the search process consolidated more than 100 preliminary articles related to the terms ‘sustainable tourism development’, ‘smart city tourism’, and ‘Asian tourist behaviour’. At this stage, both English and non-English literature were found, which were separated under the inclusion and exclusion criteria that met the requirements of the search criteria. After retrieving the search results, they were filtered into table form. This allowed for the identification and removal of 45 duplicate articles, resulting in 155 articles. Next, after reviewing the articles’ titles and abstracts, 110 articles were excluded and five more articles related to the topic were added, resulting in a total of 50 articles that were analysed. The search criteria were exported to the EndNote software, which aided the

inclusion and exclusion process. Further details on the inclusion and exclusion criteria are described in the following sections.

### **Inclusion criteria**

The process to search for relevant literature involves adopting the inclusion criteria to facilitate the standardisation. Snyder (2019) recommended three criteria of inclusion that were applied in this systematic review, which are 1) Peer-reviewed empirical and conceptual papers from the past 10 years; 2) The most relevant studies on sustainable smart cities for sustainable tourism development in the context of Thailand, regarding both business development and tourism; and 3) Specification of the definitions and theories of planned behaviour towards smart cities for sustainable tourism development and Asian tourist behaviour and attitudes towards smart cities. It included all the related studies that met these criteria for further analysis (Xiao, 2019).

### **Exclusion criteria**

Identification and elimination of irrelevant articles were applied in an extensive evaluation of the articles. First, it excluded studies not related to sustainable tourism development, for example, studies on sustainable tourism development in the nature-based perspective or cultural focuses. Second, if an article examined the influence of general tourists on sustainable tourism development, it was excluded. Lastly, it excluded articles from non-academic journals, abstracts without full papers, articles not in English, theses or dissertations, white papers, and PowerPoint presentations, in line with Rana et al. (2016).

### **Reliability and validity**

Snyder (2019) suggested that the criteria outlined by the Database of Abstracts of Reviews of Effects (DARE), the Centre for Reviews and Dissemination (CRD), and York University have guided the performance of the systematic literature review to ensure the reliability and validity of the documents by using four quality assessment (QA) questions, as follows:

QA1. Were the authors' inclusion and exclusion criteria described and appropriate?

QA2. Was the literature search comprehensive of all relevant studies?

QA3. Did the authors evaluate the quality of the literature included studies?

QA4. Were the basic data/studies adequately described?

Accordingly, as discussed in our inclusion criteria, it was ensured that the selected peer-reviewed articles were published in top-ranking indexed journals. All selected articles were also relevant to the study areas and adequately fulfilled the above QA questions.

## Results

To respond to the research question of what factors affect Asian tourists' behaviour towards smart cities for sustainable tourism development in the context of Thailand, the authors carried out the analysis and synthesis of the literature. The findings indicated that Asian tourists make the largest contribution to the country in terms of the number of arrivals, spending during their stay, and their demand for the facilities at the destination. Particularly in the cities, technologies and digital platforms are the factors that most inspire their intention to visit the destination. The high number of Asian tourists arrivals in Thailand indicates that cities, like tourism destinations, need to transition to achieve the desired level of smartness.

The theory of planned behaviour (TPB) was developed from the theory of reasoned action (TRA) and applied to explain the characteristics of tourists while they stay at a tourism destination. Notably, attitude, subjective norm and perceived behavioural control are the indicators of the theory. Tourists will react to the environment's influences, including the facilities at the destination. Presently, Asian tourists, such as those from Korea, Japan, China, Singapore, India, etc., have digitisation characteristics. Their behaviour toward the smart cities that they visit is that these destinations should provide more digitalisation to respond to their needs.

Smart cities have been broadly defined by using several meanings of the word 'smart'; however, a smart city in this study is defined as a city that uses information and communication technology to improve the systems operations within cities and to deploy the facilities that are convenient for residents and visitors as tourists to combine with their digital devices for a better quality of life. The concept of smart cities is interlinked with smart tourism, as smart cities focus on improving residents' quality of well-being whereas smart tourism focuses on tourists by providing technology to facilitate them. Both smart cities and smart tourism depend on technology and digitalisation, which contribute to economic sustainability as well as to the social and environmental pillars of the three pillars of sustainable development.

To achieve the two research objectives, which are 1) to examine the factors affecting tourists' behaviours towards smart cities and 2) to investigate the concept of smart cities for sustainable tourism development, the findings from the literature extracted using thematic analysis methods to search through the literature in addition to a systematic literature review were used to conduct the content analysis according to the inclusion, exclusion, and reliability and validity criteria, which are shown in Table 1.

**Table 1:** Summary of the systematic literature review of the findings

Author/Year	Title	Journal	Key findings
Ajzen (2020)	The theory of planned behaviour: Frequently asked questions	<i>Human Behaviour and Emerging Technologies</i>	Attitude, subjective norm, and perceived behavioural control are the indicators of consumers' attitudes, which are influenced by external factors and related internal factors within themselves.
Azevedo Guedes et al. (2018)	Smart cities: the main drivers for increasing the intelligence of cities	<i>Sustainability</i>	Urban planning and technology application for cities, which are the key driver of smart cities, and it represents the intelligence of the cities facilitating to residents and tourists/visitors
Boonchai and Beeton (2016)	Sustainable development in the Asian century: An inquiry of its understanding in Phuket, Thailand	<i>Sustainable Development</i>	Sustainable Development is a western initiated philosophy that needs to be extended in Asia and Asian culture in different perspectives, especially in the tourism context which needs to achieve the SD goals.
Chan et al. (2019)	Investigating visitors' perceptions of smart city dimensions for city branding in Hong Kong	<i>International Journal of Tourism Cities</i>	Smart cities through the perception of tourists look beyond the infrastructure that destinations provide but the convenience of the facilities is greatly related to technology. Asian visitors include more digital citizens.
Cacho et al. (2016)	Mobile tourist guide supporting a smart city initiative: a Brazilian case study	<i>International Journal of Tourism Cities</i>	Tourists travel with personal devices nowadays; thus, city destinations need to provide the technology to respond to these changes in tourists' behaviour.

Table 1: (Continued)

Author/Year	Title	Journal	Key findings
Coca-Stefaniak (2020)	Beyond smart tourism cities – towards a new generation of “wise” tourism destinations	<i>Journal of Tourism Futures</i>	Smart tourism research is still lacking in scholarship, whereas smart cities are broadly studied. These two perspectives are linked, but they are not a panacea. Consequently, smart tourism cities are the next generation of research.
Daly (2017)	Toward some operational principles of sustainable development	<i>The Economics of Sustainability</i>	The triple bottom line concept is the principle of sustainable development indicators. To achieve the three elements, the involvement of all stakeholders is needed.
Gretzel et al. (2015)	Smart tourism: foundations and developments.	<i>Electronic markets</i>	Information Communication Technology is undoubtedly the key driver of smart tourism destinations.
Gretzel and Collier de Mendonc (2019)	Smart destination brands: semiotic analysis of visual and verbal signs	<i>International Journal of Tourism Cities</i>	Smart tourism is a specialised area relevant to city destinations, and it is embedded with the overall concept of smart city development.
Hess (2019)	Thailand: Too popular for its own good	<i>Overtourism: Issues, realities and solutions</i>	Thailand is the most viewed of the inbound tourism destinations. Asian tourists view Thailand as a must-visit destination.
Koo et al. (2019)	Smart tourism and competitive advantages for stakeholders	<i>Tourism Review</i>	Smart tourism destinations rely on technology as the driver of the smartness of the destination. Likewise, a smart city is parallel to the support of smart tourism.



Table 1: (Continued)

Author/Year	Title	Journal	Key findings
Oktadiana and Pearce (2020)	Losing touch: Uncomfortable encounters with tourism technology	<i>Journal of Hospitality and Tourism Management</i>	Tourism technologies are user-based difficulties. Destination includes encounters with the annoying and uncomfortable facets of technology design for tourists to use during their trips
Zhang and Liu (2012)	On the basic concept of smarter tourism and its theoretical system	<i>Tourism Tribune</i>	Stakeholders' involvement is the key to becoming a smarter tourism destination: stakeholder theory can be applied in the research on smart tourism.
Zubizarreta et al. (2016)	Smart city concept: What it is and what it should be	<i>Journal of Urban Planning and Development</i>	A smart city is categorised as a digital city, intelligent city, knowledge city and sustainable city. When it becomes a smart city, both visitors and residents can benefit from that.

## Discussion and Conclusion

The main city itself is the gateway for tourist arrivals in a country. However, a large city such as Bangkok has welcomed more than 30 million tourists per year; hence, it is beneficial to study the urban tourism development. As per this study, there is a summary of several positive impacts of city tourism that contribute to the urban development, as an income generator (both through paid taxes and through the development of other industries) and as a city promoter from the experienced tourists generating positive reviews and stories about the city. As in other parts of the world, urban growth cannot be stopped or reduced in large cities, but it can be steered in a more sustainable direction through integrated urban planning.

This paper, therefore, contributes a foundation and starting point for a new empirical study of smart city concepts for sustainable tourism development research, which will help structure the formation of knowledge in this area through further empirical studies in the years that follow. They have been new entries arrived in the field, redefining relationships among stakeholders and creating new impacts in tourism cities (Moreno-Gil and Coca-Stefaniak, 2020).

This paper only discusses intercity travel briefly, yet it is common in this context, and in urban travel more generally. Tourism is perceived as a development opportunity for a country's economic situation in terms of the main benefits. These are the important aspects of sustainable tourism development in urban areas. The development of tourism activity in urban areas generates extra income for the stakeholders that can be invested in future tourism development plans and conservation of tourism attractions, ensuring the sustainability of the area. There are various findings concerned with the link between the attitudes, behaviour, and support from tourists for tourism development.

The findings of this paper indicate that tourism in urban areas such as large cities have the potential to become an important source of sustainable tourism development. Future research should be extended to the rural area of the country to determine the support, attitudes, and behaviour of the tourists toward tourism development, on the one hand, and to identify the satisfaction level of the tourists. To develop proper and sustainable strategies, it is important to analyse the demand for urban tourism as well. This can provide vital information about the socio-demographic characteristics of the tourists, their preferences, and travel budget, which can later be used to develop proper tourism services and products.

The purpose of this study, which was the investigation the relationship between Asian tourist behaviour toward smart cities for sustainable tourism development, has been achieved. Asian tourists contributed up to 76.13 per cent of the total tourist arrivals in Thailand in 2019. Their behaviours toward tourism can make a huge difference in terms of sustainable tourism development in the urban areas and indirectly impact the urban sustainability and smart city perspectives. Asian tourists perceive smart city tourism in Bangkok as the holistic centre of the country's tourism industry, which contributes to the economic pillar, while an understanding of the social context of Thailand has enhanced the social pillar, and lastly, the environmental impacts have been alleviated by tourist behaviours to conserve the tourism products during their trip. Moreover, tourists from neighbouring countries such as Laos, Cambodia, and Myanmar are more likely to preserve the social aspects and culture as they are familiar with them.

With the 46 per cent tourist contribution of ASEAN (as part of the Asian region) to the tourism industry in Thailand, studying the behaviour of Asian tourists to strategically plan in response to this phenomenon is needed. This paper highlights the theory of planned behaviour (TPB), which involves behavioural intention, the immediate antecedent to behaviour that varies with regard to performing a behaviour. The foundation of development

theory is the route of the sustainable development principle. Furthermore, studying people's behaviour, particularly tourist behaviour, is beneficial for tourism industry development in both the practice and support of the sustainable development principles. Smart city tourism is the gateway of welcoming tourist arrivals from international and domestic locations.

This is the place where tourists spend most of their time during a trip; therefore, urban tourism planners must be aware of this top priority in terms of tourist behaviours. Based on the results of the study, the tourism-related stakeholders can certainly consider the independent variables, such as using eco-friendly tourism products and willingness to pay the prices as the benchmarks, as well as the characteristics of the tourists. For example, to provide products and services, tourism-related to environmental concerns must have reasonable prices that are in line with the current trends as well as the affordability of the tourists generally based on their intention. Additionally, the tourism promotion organisations can also offer secured accessibility with convenience and safety when providing products and services, which leads to another level of business advancement.

The policymakers should therefore play a vital role in providing the necessary infrastructure, both logistics systems and digitalisation, for tourists to have convenient accessibility throughout their trips to the city like tourism technology (Oktadiana and Pearce, 2020). Digital information should be provided promptly and integrated with cell phone applications available for tourists. Balasaraswathi et al. (2020) studied the interactivity to exploit Big Data Analytics to support the conversion of city tourism to smart city tourism as the tourist behaviours now pay forward to digitalisation accessibility. Thus, smart city tourism involves the development of cities to have effective facilities to support tourists during their stay.

Coca-Stefaniak (2020) analysed that developing a smart city using technology and innovation in urban tourism initiated the smart concepts for the city to become a smart city in the tourism aspect. More than one thousand free Wi-Fi spots have been provided to cover touristic areas for tourists to access travel information. For smart parking areas, a smart sensor system should be installed embedded under the roadside surfaces at the parking spots, showing the drivers the available parking spaces through their cell phone applications. Smart streetlights have been established and converted to LED lights to ensure the safety and security of tourists throughout the city. Smart garbage bins were installed that can manage trash when people throw it away. Smart city tourism is driven by tourist behaviours, and

similarly, tourists' satisfaction is affected by the infrastructure in the city development related to the creation of smart city tourism.

As mentioned earlier, Asian tourists are digital citizens who are in tune with the development of technology and travel with a variety of different devices, and their behaviour towards technology has become a part of their daily activities in their lives and whilst they travel. Therefore, the development of smart cities is a potentially effective response to Asian tourists' needs. Further, smart city tourism destinations will be able to achieve sustainable development. Policymakers and stakeholders need to be more aligned in creating marketing strategies for smart cities tourism (Coca-Stefaniak, 2019)

### Limitation and Recommendation

Inevitably, a systematic review of the evident documentation was used, but there are several potential limitations. Firstly, this paper has been written in the midst of a pandemic and therefore, it focuses on the positive aspects of tourism during the normal situation, and the statistics used in the previous year for the forecasts are also from before the pandemic. Secondly, this paper does not intend to involve the COVID-19 situation in terms of analysis or recommendations as it is still ongoing without a conclusion yet. Lastly, a conceptual paper is without empirical data to confirm the context, and instead, the literature is used for discussion in this paper. Moreover, the literature on smart city tourism is limited; thus, the authors collected the most relevant evidence to support this study. Research on the factors influencing smart city tourism development is recommended in future research, for example, green marketing, green consumption, and production towards urban tourism development. In this study, the focus was on Asian tourist behaviour; therefore, the scope can be narrowed to ASEAN tourists. The study of Big Data Analytics for integration with tourist behaviour in terms of searching for the locations they wish to visit during their trip can also support city tourism to become smart city tourism. Furthermore, the study of Asian tourists' cultural complexity in the tourism field is recommended in future research because the diversity of ethnic cultures in Asia provides numerous implications to investigate more deeply.

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