



IDENTIFYING MOTIVATORS OF ECOTOURISM DESTINATION COMPETITIVENESS: THE EXAMINATION ON SOFT INFRASTRUCTURE CONSTRUCTS AND MODERATING IMPACT OF MOBILE TECHNOLOGY

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ABSTRACT

The development of ecotourism in Malaysia is crucial in the current digitalized world, as nature enthusiasts seek authentic travel experiences to reconnect with the environment. This study focuses on investigating the link between government tourism policy, health services, safety and security, destination competitiveness, and the moderating effect of mobile technology. The study was conducted on 170 domestic tourists who visited various national parks in Sarawak, Malaysia. The data collected has undergone preliminary analyses using SPSS 26.0 while the proposed study model was evaluated using WarpPLS 8.0, which allowed for path modelling and bootstrapping to obtain the estimates of standard error and p-values. The results indicated a significant direct relationship between health services and destination competitiveness. Mobile technology was found to moderate the relationship between government tourism policy, safety and security, and destination competitiveness. However, due to the COVID-19 pandemic, the study was limited to domestic tourists, and the implications of these findings are discussed.

KEYWORDS

Malaysia, Ecotourism, Soft Infrastructure, Mobile Technology, Structural Equation Modeling.

RESUMEN

El desarrollo del ecoturismo en Malasia es crucial en el actual mundo digitalizado, ya que los entusiastas de la naturaleza buscan experiencias de viaje auténticas para reconectar con el medio ambiente. Este estudio se centra en investigar la relación entre la política turística gubernamental, los servicios sanitarios, la seguridad y protección, la competitividad de los destinos y el efecto moderador de la tecnología móvil. El estudio se realizó con 170 turistas nacionales que visitaron varios parques nacionales de Sarawak (Malasia). Los datos recogidos se sometieron a análisis preliminares con el programa SPSS 26.0, mientras que el modelo de estudio propuesto se evaluó con WarpPLS 8.0, que permitió la modelización de trayectorias y el bootstrapping para obtener las estimaciones del error estándar y los valores p. Los resultados indicaron la existencia de una relación directa significativa entre los servicios sanitarios y la competitividad de los destinos. Se observó que la tecnología móvil moderaba la relación entre la política turística gubernamental, la seguridad y la competitividad de los destinos. Sin embargo, debido a la pandemia de COVID-19, el estudio se limitó a los turistas nacionales, y se discuten las implicaciones de estos resultados.

PALABRAS CLAVE

Malasia, Ecoturismo, Infraestructura blanda, Tecnología móvil, Modelización de ecuaciones estructurales.

1. INTRODUCTION

Tourism sector has been one of the sectors with the quickest rate of growth over the past 50 years. Tourism is becoming increasingly dominant in the global economy (Kubickova & Smith, 2019; Nilashi et al., 2019). According to Baggio (2019), tourism encompasses the movement of individuals from their usual surroundings to other places for either personal or professional purposes, involving cultural, social, and economic factors. Tourism has far-reaching effects on the economy, environment, and the well-being of residents and tourists. As a result, it involves several sectors and requires different products and services for travellers. Thus, tourism has an impact on a wide range of stakeholders (Li & Wu, 2019).

The assessment of destination competitiveness is a crucial aspect of the tourism industry in today's globalized world. The remarkable performance of tourism sector, particularly in the global economy has led countries to invest in destination development, resulting in an upsurge in the number of destinations competing for a similar group of tourists (Zehrer et al., 2017). Therefore, destination competitiveness is of significant interest to policymakers and practitioners, given the intense competition in the global tourism market (Drakulić Kovačević et al., 2018). When tourists choose a destination, they consider the whole travel experience, which underlines the importance for a competitive destination to focus not only on its attractions, but also on other elements such as hospitality and transport". According to Catudan (2016), the government's investment in local infrastructure, health services, transportation, peace, order, and other facilities can lure direct foreign investment and stimulate tourism. This indicates that prioritizing these factors can help to improve the competitiveness of a destination. Additionally, previous studies have also emphasized the importance of infrastructure, transportation, and hospitality industries in the tourism industry (Chambers, 2010; Fernández et al., 2020).

Competitiveness of a destination relies on its availability of adequate infrastructure development. A destination needs to be constantly expanded and enhanced in terms of its infrastructure to stay competitive among other destinations (Mustafa et al., 2020). Travellers typically require a variety of infrastructures when they travel to different places, including health services to address any emergencies or ensure good health, safety and security measures to guarantee personal safety. Moreover, clear tourism policies that facilitate access to the destination. Indeed, both

qualitative and quantitative diversification of infrastructure is often regarded as highly influential on a destination's attractiveness (Herman et al., 2020). Infrastructure is typically classified into two categories: hard and soft infrastructure (Baskakova & Malafeev, 2017). However, this study solely takes into account soft infrastructure as a factor affecting the competitiveness of the destination.

Increasingly, the attention of tourists has turned to visiting ecotourism sites on a regular basis to get a quick break from a stressful work environment (Fromm, 2017). As a result, there might be an increase in tourists visiting these natural attractions. However, it is advisable for tourism stakeholders to operate with a fine sense of balance when it comes to competitiveness traits, since doing otherwise could result in over tourism due to a potential overflow of carrying capacity. Undoubtedly, the ecotourism sites need to make sure that their infrastructure is of appropriate quality if they want to maintain their comparative, competitive advantages and market positions among rivals. The infrastructure of Malaysia is inconsistent, especially between the West and the East of Malaysia. According to Tan Sri Datuk Patinggi Abang Johari Tun Openg, the Premier of Sarawak, the East Malaysia state - Sarawak, is lagged behind West Malaysia in terms of infrastructural development for far too long, and this has hampered Sarawak's overall development. (Aga, 2019; "Masing Laments Mistreatment of Sarawak, Lack of Road Infrastructure," 2020).

Moreover, ensuring easy and safe access to various tourism sites within the destination is crucial for tourism development (Thong et al., 2022). Soft infrastructure plays an imperative role in ensuring ease and safety for tourists while travelling. Consequently, soft infrastructure will impact destination competitiveness (Hanafiah et al., 2016; Arshad et al., 2018; Bagheri et al., 2018). However, to date, there is limited study on soft infrastructure impacting destination competitiveness in Sarawak, Malaysia. Lacking empirical evidence on investigating the soft infrastructure is a problem for decision-makers or scholars while making decisions or performing further research. Thus, it is necessary to include soft infrastructure in this study to find out the impact of soft infrastructure on destination competitiveness in the context of Sarawak, Malaysia.

The economy's growth is driven by technological advancements in this modern era (Hanafiah et al., 2022). Competitive advantages now rely more on science, technology, information, and innovation than on natural resources due to the sensitivity of information. To stay competitive, many businesses depend on technical

innovation (Hojeghan & Esfangareh, 2011; Ferreira et al., 2019). When it comes to current tourism technology, smart phone became one of the most frequently used mobile technology (Singh et al., 2016). Travellers commonly use mobile technologies for trip planning due to its expediency and ease of access to information (Yang, 2019). Moreover, Palumbo (2015) emphasized the need for innovative and effective technological facilitators to enhance accessibility and mobility and offer a superior tourism experience. Although previous studies have examined mobile technology and its moderating role in education (Seckman, 2019), no known research has yet investigated the moderation of mobile technology on the relationship between soft infrastructure and competitiveness of a destination. Hence, the present study will investigate the impact of soft infrastructure (tourist policy, health services, safety and security) on destination competitiveness, with the utilization of mobile technology as a moderator.

The aim of this study is to address the gaps in knowledge regarding the impact of each soft infrastructure on destination competitiveness. Furthermore, this research seeks to bridge the gap between soft infrastructure and destination competitiveness by utilizing the moderation of mobile technology. The study is foreseen to add to the existing literature in the field and provide valuable insights for government agencies and practitioners, particularly in achieving sustainable income generation.

2. CONCEPTUAL BACKGROUND AND LITERATURE REVIEW

2.1) SOFT INFRASTRUCTURE IN TOURISM:

According to World Economic Forum, soft infrastructure is commonly defined as the foundation needed to sustain societies (Vaughan-Morris, 2012). Other than that, soft infrastructure enables the management of hard infrastructure that eventually improves the economic well-being via social and political communication, market and non-market economy (Turner, 2020). In short, soft infrastructure is the social, political or cultural institution that provides services to support the whole community or a nation (Cantú, 2017). Soft infrastructure is often more important than hard infrastructure in attracting foreign direct investment (FDI), which is believed to have twice the return of investment, economic reforms, and FDI (Fung et al., 2005; Rehman et al., 2011; Ogunjimi & Amune, 2019). In terms of tourism, soft

infrastructure is important in the sense that experience of tourists is not solely dependent on the hard infrastructure but also the people they met, the interpersonal experience as well as the social encounters they had at the destination (Pearce & Wu, 2015; Wilopo et al., 2020). Besides, according to Seetanah et al. (2016), soft infrastructure is an important factor of tourism as it contributes to decision making among tourists on choosing destination, attractiveness, competitiveness, and tourist loyalty in terms of recommending and revisit intention.

2.1.1) GOVERNMENT TOURISM POLICY:

Government or governance is a widely recognized as critical soft infrastructure by researchers (Al-Maamari, 2017; Tonny & Wulan, 2020). Policy by its meaning is the political strategy, tactic, and implementation (Tang, 2017). Policies are usually conditioned by social factors and made by various stakeholders to protect their interest (Sheppard & Fennell, 2019). Government policy is usually made upon power-sharing, compromising, collaboration, partnership, and negotiation between all sectors to create new governance (Hall, 1994; Dredge, 2006; Bramwell, 2011). It has been treated as a tool by the government for economic development and reconstruction purposes (Andriotis et al., 2019). Within all government policies, the policy explicitly formed in relation to tourism is known as tourism policy. Generally, tourism policy refers to the policy of the government made with respect to tourism. In other words, the government chooses what to do and what not to do in the field related to tourism. It is one of the most significant elements in shaping the tourism nature of a country, enabling the socio-cultural, ecological, economic impact and protecting the interest of the industry (Sheppard & Fennell, 2019).

With the ideology of the government's determination on the workability of tourism policy in tourism development, the policy may change over time, subjected to the political parties and culture (Ordonez De Pablos & Aung, 2017). The purpose of creating a tourism policy includes promotion, restriction, and guidance on tourism development (Tang, 2017). Tourism policies should consider both short-term and long-term plans along with the linkage of other policies from different sectors to ensure accurate and precise policies created. With the implementation of tourism policy, there are good chances for the government's income from taxes, foreign currency, and job creation of the local community, which can significantly benefit the

country's overall economy (Sharma et al., 2019). To some extent, tourism policy tends to be a guideline of tourism development for underdeveloped or developing countries. At the same time, it acts as a pillar of sustainability and vitalizes the tourism sector in a developed country (Andriotis et al., 2019).

The fierce competition of the global tourism market has pushed policymakers to develop a new tourism policy to capture the opportunities and cope with the challenges (Koubida et al., 2017). In fact, tourism policy is one of the most influential factors toward destination competitiveness (Kozegar Kaleji et al., 2017). These tourism policies formed by the government are usually acting as guidelines to all tourism development processes, operations and management, gearing toward sustainability which is in line with global best tourism practices to enhance the destination competitiveness of the country (Ismet & Abuhjeeleh, 2016). Many scholars have conducted on the effect of policies and destination competitiveness. For example, Agiomirgianakis et al. (2017) has suggested that policy authorities and private tourism agents should avoid the increasing Value Added Tax (VAT) and introduce exchange rate policies that reduce fluctuations of the exchange rate to Singapore as these actions will lead to a reduction of tourism competitiveness at the international level. On the other hand, European Union has formed various tourism policies over the years in order to be competitive in the global tourism market to achieve sustainable tourism development (Estol et al., 2018). In line with the literature above, the following hypothesis is formulated:

H1: Government tourism policy has a significant positive impact on competitiveness of a destination.

2.1.2) HEALTH SERVICES:

Health services have been recognized as a soft infrastructure by many scholars, and it is a popular topic in tourism (Seetanah et al., 2016; Al-Maamari, 2017; Cantú, 2017; Tonny & Wulan, 2020). World Health Organisation (WHO) has defined health services as all the all services explicitly dedicated to diagnosing and treating disease, promoting, maintaining, and restoring the public's health (Moreno-González et al., 2020). There are many types of health services such as consultation by doctors, hospital services, emergency services (ambulance, emergency department, after-hours clinic, etc.), physiotherapists, psychologists, dentists, opticians, and so on

(Berens et al., 2018). These services are providing individual health services or community health services. Besides, good accessibility of health services in all dimensions, including physical, cost, and social, is crucial when people seek medical assistance. Health is an aspect that holds a vital role for every country as it has been recognized as an important indicator of a country's development (Hanifah et al., 2018).

Health services can ensure the health of tourists and reduce their fear while traveling. Good health services can drive to increase the visitor arrival as it provides a health guarantee for the travellers. It is an important infrastructure for the group of tourists who travel with family, the older travellers and the disabled travellers. The availability of clinics around the hotel, clinics scattered around the entire country, especially at the destinations, pharmacy availability, and all medical-related services can ensure the health of the tourists. Many countries, including India and Malaysia, invested a lot in medical services to boost their medical tourism for those who are travelling for leisure and medical purposes. Besides, the empirical result shows that health infrastructure is essential in promoting and nurturing the tourism industry (Seetanah et al., 2016). The tourist has a greater risk of illness and death while travelling to other countries. Around 20% to 25% of tourists' deaths are caused by traffic injuries, 22% to 64% of the travellers suffer from some sort of mild illness while travelling. Around 8% of the travellers suffer from a more severe condition that requires medical treatment, where 0.3% of them need to be hospitalized during the trip or upon the return after the trip (Lee et al., 2018).

Availability of health services in a destination is one of the most important factors to destination competitiveness (Clark & Wise, 2018) and rated as one of the pillars of tourism competitiveness (Dwyer et al., 2016). Michael et al. (2020) and Mustafa et al. (2020) identified health and hygiene as one of the 14 components of destination competitiveness according to the World Economic Forum. Knežević Cvelbar et al. (2016) identified the quality of the health system as a driver of destination competitiveness in developed countries. Similarly, Gajić et al. (2018) found that health services for tourists have a significant impact on destination competitiveness in Slovenia, with a mean of 4.32 and a standard deviation of 1.086, while Vojvodina has a mean of 4.29 and a relatively high standard deviation of 0.756. Consequently, based on the abovementioned reviews, the following hypothesis is developed:

H2: Health services have a significant positive impact on competitiveness of a destination.

2.1.3) SAFETY AND SECURITY:

Many scholars recognize safety and security as soft infrastructure (Seetanah et al., 2016; Cantú, 2017; Zimano & Ruffin, 2018). Considering the crises and disasters such as terrorist attack, economic recession, biosecurity threats, political instability and natural disasters happened in the tourism industry over the past decades; safety and security tend to be relatively important for the tourists in their decision making (Fino & Andrade, 2018; Fitri Amir et al., 2018). This is solely due to the perceived risks of tourists while they are assessing the destination prior to their decision making. According to Uchenna et al. (2016), both the public and private sectors should identify the possible safety and security risks and develop a plan to counter all the risks for the tourist. In short, the tourism industry has to protect and support the visitors throughout their visit and ensure that there is the least potential safety and security risk (Poku & Boakye, 2019).

Safety and security in tourism may refer to the predominant feeling on the need for safety and the environment security requirement while having the trip abroad. From the perspective of tourists, they are concerned about overall safety and security while travelling to, during, and back from the destination (Hsu et al., 2017). Lacking safety and security may harm the tourism industry because of the fact that low safety and security will create negative word-of-mouth despite the excellent attractions of the destination (Perić et al., 2018). Moreover, cybersecurity is one of the threats to the overall safety and security of a destination because cyberattack can erode the trust and confidence of tourists as well as destination reputation. Hence, cyber security can be the tourism industry's competitive differentiator (Paraskevas, 2020). Ultimately, an unsafe destination will lead to the difficulty of attracting tourists and slowing down the whole tourism industry (Wang & Lopez, 2020).

Furthermore, safety and security are often a major concern of tourist while travelling to a country. Therefore, it turns out to be a critical determinant of destination competitiveness (Ramukumba, 2019). If the country is generally dangerous, international tourists and investors are less likely to consider it a destination of choice due to safety and security concerns. This will drive the country

to be less attractive, thus reducing its competitiveness (Costea et al., 2017). Only safe and secured destinations are able to compete for more tourists (Michael et al., 2020). Hsu et al. (2017) have conducted a study on measuring the outbound travelling decision making of Chinese tourists, where the authors confirmed that the safety and security of a country would greatly influence Chinese tourists' decision-making, which leads to an upsurge or a drop in destination competitiveness. Subsequently, a recent study by Hossain (2019) has surveyed the attributes to enhance the destination competitiveness of Bangladesh, where resulted in demonstrating that safety and security as the most significant attribute among the other 24 identified attributes. Therefore, a hypothesis can be formed as below:

H3: Safety and security has a significant positive impact on competitiveness of a destination.

2.2) DESTINATION COMPETITIVENESS:

Destination competitiveness is the capacity to boost tourism spending through increased visitor numbers, ensuring satisfaction and great experiences, enhancing the quality of life for locals, and maintaining the area's natural resources for future generations (Knežević Cvelbar et al., 2016; Thong et al., 2020). Destinations can be identified by the fundamental resources, which might be either natural, inherited or man-made, nevertheless, to enhance the level of experience among visitors, these resources are typically dependent on the management of public and private organisations (Chin et al., 2022). Based on the activities developed by these organisations, the competitiveness of the destination may be impacted. A destination tends to acquire competitiveness when tourism activities are established based on tourists' needs and wants. Therefore, boosting the level of competitiveness is significantly dependent on the actions taken by tourism businesses (Dwyer et al., 2016; Bassols & Bonilla, 2022)., as both arrivals of tourist as well as revenues gained from tourism activities are both directly and indirectly affected by the competitiveness of a destination, specifically through employment, adaptability of new inventions, commercial and public institutions as well as infrastructure in the industries relevant to tourism (Costea et al., 2017).

Due to the fact of robust competition among destinations and the growth of the tourist sector depend heavily on destination competitiveness (Carayannis et al.,

2018), the present study examines the soft infrastructures as determinants influencing the competitiveness of Sarawak, Malaysia's tourism destination.

2.3) MOBILE TECHNOLOGY:

Mobile technology generally refers to portable electronic devices, such as tablets, smartphones, laptops, and others, that feature a liquid crystal display (LCD) and are operated through a digital keypad or touch screen (Fietzer & Chin, 2017). It provides users with quick, 24/7 services from anywhere, and is a vital tool that allows tourists to engage with both the physical and digital aspects of their travel experience (Fernández et al., 2020). The growth of the mobile technology industry has resulted in a proliferation of mobile applications (apps), including those designed for use in the tourism industry (Chan et al., 2022). All in all, mobile technology is expected to have a significant impact on the growth of tourism, with far-reaching effects on the economy (Ramos-Soler et al., 2019).

Over the years, travellers are gradually drawn to the usage of mobile devices for its easily accessible online trip planning tools, mobile maps and electronic tour guides. The mobile tourism trend has now emerged and is becoming increasingly well-liked. According to Yang (2019), 16% of smartphone users use travel-related apps, making them the sixth most downloaded type of app. Out of those users, 45% utilize these apps for planning their trips, thus, this highlights the importance of travel apps as a beneficial tool for smartphone users while enabling tourism to be sustainable. Additionally, the two-way communication between travellers and destination marketing organizations (DMOs) can be deepened through these apps (Ramos-Soler et al., 2019).

The connection between infrastructure and mobile technology can be witnessed in the context of smart tourism. Subsequently, the notion of smart cities, whereby the connection and enhancement of all the infrastructure in these cities are enabled by smart technology, helps to determine the foundation for smart tourism. Furthermore, the development of smart cities is facilitated by various technologies such as mobile technology, Internet of Things (IoT), and cloud computing (Liu & Liu, 2016). The ability of the tourism industry to be connected both online and offline makes mobile technology and the Internet essential in developing the competitiveness of a destination. Following that, it offers management tools, more affordable access to

current and potential customers alongside various methods of marketing (Adeola & Evans, 2019).

Many governments are using mobile technology to service their nations which creates the concept of mobile governance. Mobile governance is the interaction network established by the government with the implication of mobile technology to communicate among public, private and other sectors (Mishra & Singh, 2019). Besides, literature found that mobile technology can increase destination competitiveness, which offers interaction between destination operators and tourists (Gračan et al., 2021), thus enhancing destination competitiveness.

Following that, mobile health is a form of health services incorporated with mobile technology to enhance the health and people's life (Helbostad et al., 2017; Hussein, 2018). The development of mobile health shows that mobile technology has a positive relationship with health services as it can enhance the users' experience when they are seeking the services. Apart from that, mobile technology also allows the users to customise their experiences and share them with their friends and family while travelling at the destination, directly impacting the destination competitiveness (da Costa Liberato et al., 2018).

Subsequently, mobile technology has established a positive and significant relationship with safety and security. Scholars found that mobile technology can equip the users with safety and security information via mobile applications so that the mobile users can react immediately if there is any safety issue happen which can provide the feeling of safe and secure (Chan et al., 2020; Mak et al., 2018; Shrestha et al., 2021). Additionally, destination competitiveness is recognised to be significantly affected by mobile technology, enabling a new way of travelling. In the current era of digitalisation, the tourist experience is empowered by information and entertainment from mobile technology (Cavalheiro et al., 2020). In light with the Theory of Technology Adoption and Competitiveness theory, while considering the discussion conducted in the present research, it can be hypothesised that:

H4: Mobile technology moderates the relationship between government tourism policy and competitiveness of a destination.

H5: Mobile technology moderates the relationship between health services and competitiveness of a destination.

H6: Mobile technology moderates the relationship between safety and security and competitiveness of a destination.

3. METHODOLOGY

In this study, the collection of data was conducted at a few ecotourism destinations. Out of the 13 states in Malaysia, Sarawak has the most ecotourism clusters (9%) according to the National Ecotourism Plan (NEP) 2016-2025. Moreover, the promotion of the state as a reputable ecotourism destination has been prioritized by the government of Sarawak. Following this, the top five ecotourism destinations in Sarawak, selected for this study based on visitor numbers, are Gunung Mulu National Park, Niah National Park, Bako National Park, Matang Wildlife Centre and Semenggoh Nature Reserve, all of which are located in remote areas of Sarawak, which are deemed to require significant infrastructure.

Quantitative data was collected through survey questionnaires that were administered to both domestic and international tourists who visited the ecotourism destinations in Sarawak. The survey entailed two sections, the first of which focused on collecting demographic information about the participants. The second section contained questions that were designed to measure various constructs. Generally, Section A had seven questions, while section B had 22 questions. The measurement instruments in Section B were all modified from earlier studies (Lee & King, 2009; Díaz, 2017; Zehrer et al., 2017; Chen & Tsai, 2019) and altered to cater the local context. To tap into the response, a 5-point Likert scale has been inferred for the measurement items. Prior to the survey, pre-testing was conducted. According to the pre-test results, the construct evaluating destination competitiveness should have fewer items since respondents thought it had too many and was confusing. After collecting the data using survey questionnaires, the researcher held a focus group discussion with tourism experts to determine the measures for assessing destination competitiveness. The chosen items in the questionnaire were divided into four primary categories based on the research setting and feedback from the said discussion. Consequently, the evaluation items for other constructs were modified to fit the local context based on the results obtained from pre-testing. To ensure the construct validity, additional pilot tests were conducted by the researchers before initiating the survey.

The researcher visited the research sites and obtained permission from the management to conduct the study in person. Due to the limitations and restrictions

imposed by the COVID-19 pandemic, a Google Form was created and shared via a quick response (QR) code for participants to complete the survey digitally, thereby minimizing physical contact. The use of a Google Form also ensured that all measurement items were completed before submission, avoiding incomplete data. Then, the purpose of the study and a request for participation were presented on a cover page to respondents after the QR code was scanned using their mobile devices. However, some visitors who had difficulty understanding the measurement items were confrontationally interviewed while adhering to social distancing guidelines to prevent COVID-19. To account for respondents who were inaccessible to a smart gadget or the ability to scan the QR code, thus the preparation of questionnaires in hard copy totalling up to 50 sets. Initially, the data collection period Was to start in November 2020 and end in January 2021, for a total of three months, nevertheless, the process was postponed to March 2021 due to the COVID-19 pandemic's sporadic restrictions on public movement, which resulted in low visitor numbers when both the national and state governments implemented Movement Control Orders (MCO).

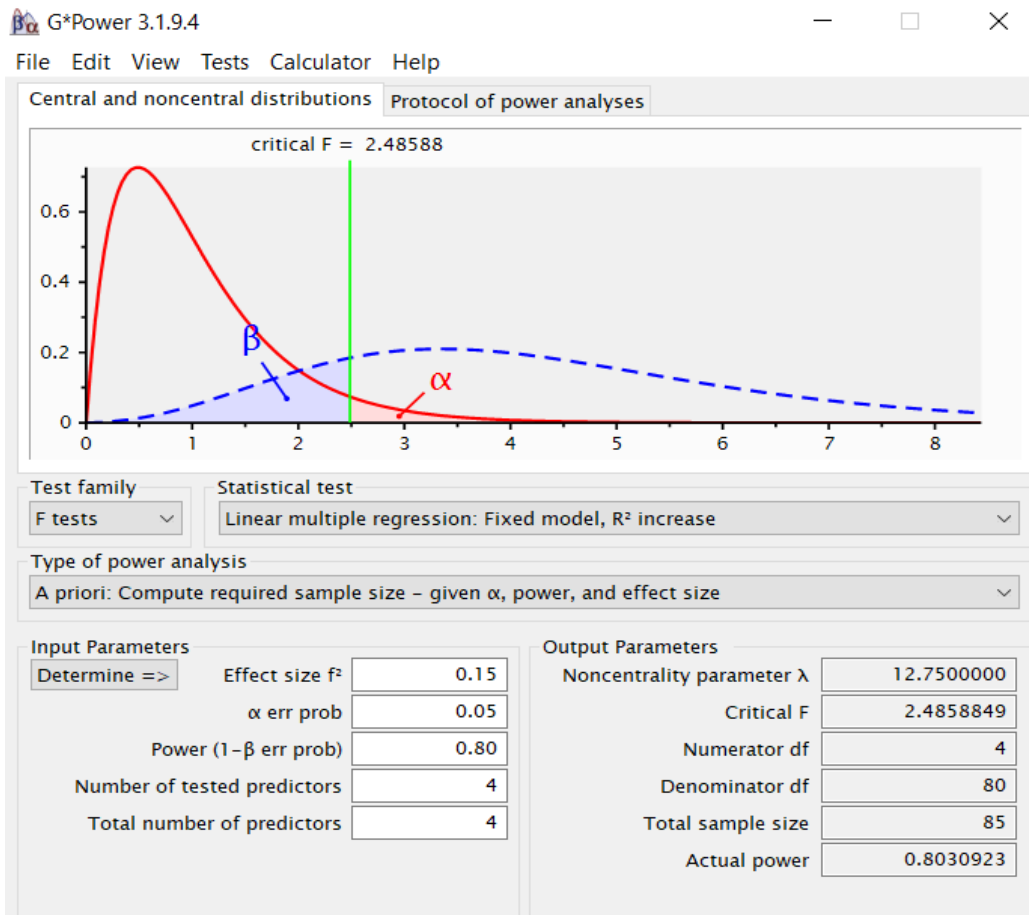


Illustration 1. Results of G*Power analysis.

To ensure the adequacy of samples in the present study, the researchers have utilized G*Power analysis, which is a standalone program commonly used in the social, medical and behavioural sciences, mainly to conduct power analysis for various statistical tests (Faul et al., 2007). Generally, the analysis aimed to determine the required sample size for the study based on a power analysis, where a power greater than 0.80 is deemed necessary to determine the relationship between constructs (Cohen, 1988). By using four predictors, an effect size of 0.15, 80% power, and a 5% level of significance, the a priori analysis indicated that at least 85 respondents were necessary for the study (as shown in Figure 1). While the Google Form received 174 data sets, four were excluded due to straight-lining issues, leaving 170 (97.7%) data sets for further analysis, which is sufficient to examine the proposed relationships' significance.

Preliminary information and descriptive statistical analysis were conducted using SPSS version 28.0. The respondents' demographic data are shown in Table 1 below.

| No. | Demographic Variable | Category | Respondents (N=170) | |
|-----|-----------------------|---------------------------|---------------------|----------------|
| | | | Frequency (n) | Percentage (%) |
| 1. | Gender | Male | 101 | 59.4 |
| | | Female | 69 | 40.6 |
| 2. | Age Group | Below 18 | 5 | 2.9 |
| | | 18 – 25 | 48 | 28.2 |
| | | 26 – 35 | 63 | 37.1 |
| | | 36 – 45 | 28 | 16.5 |
| | | 46 – 55 | 8 | 4.7 |
| | | 56 – 65 | 15 | 8.8 |
| | | 66 and above | 3 | 1.8 |
| 3. | Marital Status | Single | 116 | 68.2 |
| | | Married | 54 | 31.8 |
| 4. | Employment Status | Employed | 95 | 55.9 |
| | | Unemployed | 4 | 2.4 |
| | | Self-employed | 21 | 12.4 |
| | | Students | 41 | 24.1 |
| | | Retired | 9 | 5.2 |
| 5. | Purpose of the Visit | Holiday | 93 | 54.7 |
| | | Conference and Exhibition | 4 | 2.4 |
| | | Health Treatment | 1 | 0.6 |
| | | Sport | 1 | 0.6 |
| | | Education / Seminar | 29 | 17.1 |
| | | Business | 22 | 12.9 |
| | | Visiting Friends / Family | 19 | 11.2 |
| | | Incentive Trip | 1 | 0.6 |
| 6. | First time in Sarawak | Yes | 27 | 15.9 |
| | | No | 143 | 84.1 |
| 7. | Trip planned by | Self | 160 | 94.1 |
| | | Travel Agencies | 7 | 4.1 |
| | | Company | 3 | 1.8 |

Table 1. Respondents' demographic information.

Source: Own elaboration based on assessment of the measurement model.

The researcher evaluated the soundness and consistency of the constructs by utilizing WarpPLS 8.0 software and analysing the connections among the constructs in the study model (Hair et al., 2017). In the next section, the findings of the PLS-SEM analysis, which was conducted in two stages, will be presented.

4. RESULTS

4.1) THE MEASUREMENT MODEL'S ASSESSMENT:

The reliability, convergent validity, and discriminant validity of the measuring scale were evaluated using confirmatory factor analysis (CFA). For the sake of internal consistency, the loadings of 0.5 and lower will be removed. (Bagozzi et al., 1991). During this investigation, all loading value is greater than 0.5, as shown in Table 2 below, hence, none of the item should be eliminated. According to Chin (2010), the values of composite reliability (CR) should be at least 0.7 in order to guarantee the declaration of the validity of the data. In addition, it is important to avoid values below 0.50 for the average variance extracted (AVE) threshold, according to Fornell and Larcker (1981). In the current study, all of the AVE and CR measurements have complied with the minimal standards. In addition, the internal consistency and reliability of the instrument were assessed by computing Cronbach's alpha values (Cronbach, 1951). Nunnally and Bernstein (1994) suggested for Cronbach's alpha, 0.60 and below denoting poor, 0.61 to 0.79 denoting acceptable, as well as 0.80 and above denoting considerably good. In this study, Cronbach's alpha values for health services were determined to be acceptable, as shown in Table 2. Additionally, the study found that government tourist policies, safety and security, destination competitiveness, and mobile technology were all considered good.

| Construct | Items | Loadings | Cronbach's Alpha | AVE | CR | Mean | Std. Deviation |
|---------------------------|-------|----------|------------------|-------|-------|------|----------------|
| Government Tourism Policy | GTP_1 | 0.803 | 0.855 | 0.698 | 0.902 | 3.51 | 0.73 |
| | GTP_2 | 0.882 | | | | | |
| | GTP_3 | 0.864 | | | | | |
| | GTP_4 | 0.789 | | | | | |
| Health Services | HS_5 | 0.758 | 0.759 | 0.582 | 0.847 | 3.60 | 0.68 |
| | HS_6 | 0.823 | | | | | |
| | HS_7 | 0.754 | | | | | |
| | HS_8 | 0.711 | | | | | |
| Safety and Security | SS_9 | 0.741 | 0.834 | 0.602 | 0.883 | 3.22 | 0.77 |
| | SS_10 | 0.840 | | | | | |
| | SS_11 | 0.788 | | | | | |

| | | | | | | | |
|-----------------------------|-------|-------|-------|-------|-------|------|------|
| | SS_12 | 0.720 | | | | | |
| | SS_13 | 0.785 | | | | | |
| Destination Competitiveness | DC_14 | 0.748 | 0.809 | 0.637 | 0.875 | 3.63 | 0.77 |
| | DC_15 | 0.776 | | | | | |
| | DC_16 | 0.847 | | | | | |
| | DC_17 | 0.817 | | | | | |
| Mobile Technology | MT_18 | 0.863 | 0.912 | 0.740 | 0.934 | 4.09 | 0.83 |
| | MT_19 | 0.847 | | | | | |
| | MT_20 | 0.857 | | | | | |
| | MT_21 | 0.887 | | | | | |
| | MT_22 | 0.845 | | | | | |

Table 2. Convergent validity of the measurement model.

Note. GTP represents Government Tourism Policy, HS represents Health Services, SS represents Safety and Security, DC represents Destination Competitiveness, and MT represents Mobile Technology. The questionnaire items for both section 1 and 2 can be found at appendix.

The research model's constructs were evaluated for inter-correlation by taking the square root of the average variance extracted (AVE) value, using the criteria provided by Fornell and Larcker (1981). It should be emphasized that each construct's correlation should be greater than the values adjacent to and below it (Chin, 2010). Table 3 shows that all of the construct's correlation values are higher than those of the adjacent and lower constructs, which indicates that there is no issue of multicollinearity in this study.

| | 1 | 2 | 3 | 4 | 5 |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|
| Government Tourism Policy | 0.836 | | | | |
| Health Services | 0.435 | 0.763 | | | |
| Safety and Security | 0.423 | 0.500 | 0.776 | | |
| Destination Competitiveness | 0.317 | 0.444 | 0.336 | 0.798 | |
| Mobile Technology | 0.200 | 0.104 | 0.005 | 0.337 | 0.860 |

Table 3. Discriminant validity of the measurement model.

4.2) THE STRUCTURAL MODEL'S ASSESSMENT:

The endogenous latent variables in this study have a coefficient of determination (R^2) of 0.30 and contribute 30% to the construct. R^2 values of 0.67, 0.33, and 0.19 indicate strong, medium, and weak coefficients of determination, respectively (Chin, 1998). The R^2 values in this study, however, are more than 0.19, which denotes that the R^2 value is "weak." As a result, the research model used in the current investigation is valid, reliable, and has convergent and discriminant validity.

The findings of the hypothesis testing are shown in Table 4 and Figure 2 below. When testing one-tailed hypotheses, the p-value cut-off point should be smaller than 0.01 or 0.05. The statistical results revealed that H2, H4, and H6 were supported. It was discovered that the health services had a direct and positive relationship with destination competitiveness ($\beta = 0.302$, $p = 0.01$). In addition, the study revealed that the relationship between government tourism policy ($\beta = 0.198$, $p = 0.003$), safety and security ($\beta = 0.155$, $p = 0.014$), and destination competitiveness was moderated by the use of mobile technology. However, hypotheses H1, H3, and H5 were not supported by the findings. To further comprehend the connection between the constructions, effect size values (f^2) were studied. Large, medium, and small effect sizes are represented by the values of 0.35, 0.15, and 0.02 respectively (Cohen, 1988; Hair et al., 2017). Table 4 displays the effect size, and H1, H2, H3, H4, and H6 correspond to small effect sizes (0.028 – 0.138). Additionally, H5's effect size is less than 0.02, indicating that there is no effect.

| Hypothesis | Relationship | Std. Beta | Std. Error | P-value | Decision | f^2 |
|------------|--------------|-----------|------------|----------|------------------|-------|
| H1 | GTP > DC | 0.089 | 0.071 | 0.107 | Not Supported | 0.030 |
| H2 | HS > DC | 0.302 | 0.068 | <0.001** | Supported | 0.138 |
| H3 | SS > DC | 0.080 | 0.071 | 0.132 | Not Supported | 0.028 |
| H4 | MT*GTP > DC | 0.198 | 0.070 | 0.003 | Supported | 0.047 |
| H5 | MT*HS > DC | 0.000 | 0.073 | 0.499 | Not Supported | 0.000 |
| H6 | MT*SS > DC | 0.155 | 0.070 | 0.014 | Supported | 0.054 |

Table 4. Summary of path coefficients and hypothesis testing.

Note. Single-tailed hypothesis testing = $t > 1.645^*$; $p < 0.05$, or $t > 2.33^{**}$, $p < 0.01$.

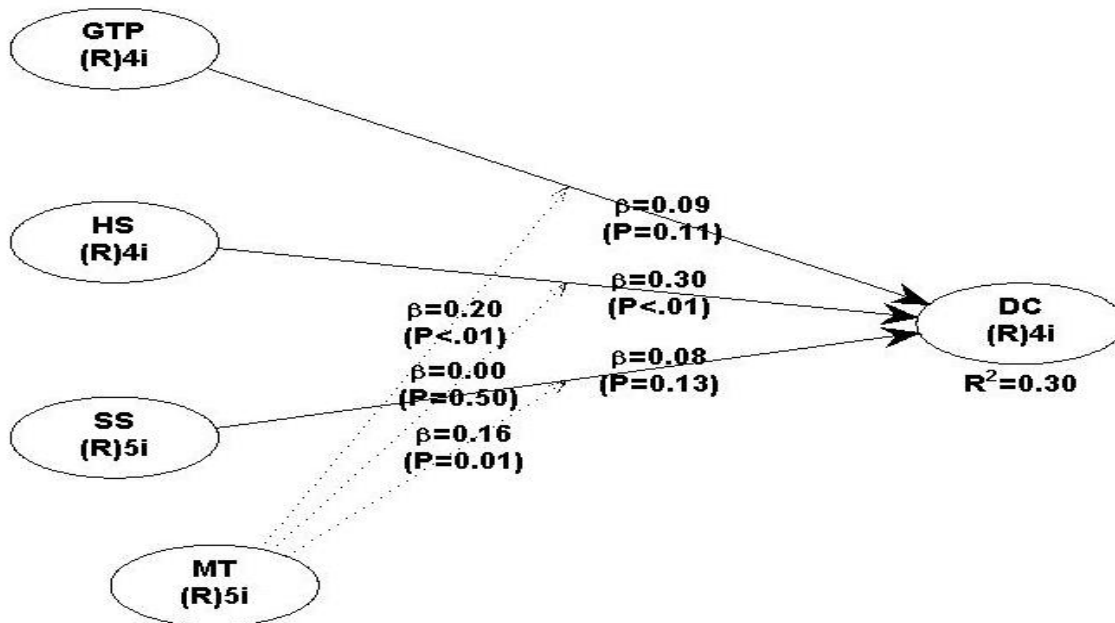


Illustration 2. P-value and path coefficient.

5. DISCUSSION

In line with the previous research (Gaji et al., 2018; Phuthong et al., 2022), this study found a positive and substantial relationship between health services and destination competitiveness. Therefore, H2 is deemed to be supported. In accordance with prior research (Mishra & Singh, 2019; World Bank Group, 2020), the present study's results support H4, indicating that the association between government tourism policy and destination competitiveness is moderated by mobile technology. Furthermore, mobile technology found to moderate safety and security and destination competitiveness, which is tally with the past studies (Mak et al., 2018; Shrestha et al., 2021), thus H6 is supported.

Surprisingly, the results of this study show that there is no substantial association between destination competitiveness and government tourism policy; hence, H1 is not supported. Based on the interviews with the respondents, it is conceivable that visitors are pessimistic and unaware of Sarawak's developed tourism policy. Many tourists are unaware of the details of the tourism policies. They do not believe that the actors in the tourism industry or the general public will benefit from the existing tourism policy. Lemos Baptista et al. (2019) contend that in order to increase

destination competitiveness, the private sector should be included in the formulation of tourist policy and regulations. Mendola and Volo (2017) added that when formulating policies, decision-makers should take into account a variety of variables and viewpoints as well as its viability (Kunst & Ivandić, 2021). Therefore, the local government should appropriately implement the tourism strategy and tailor it to the circumstances of the local tourism sectors. Inadequately planned and carried executed policies are detrimental to the country's tourism business (Kubickova & Martin, 2020).

Moreover, the results demonstrate that there is no significant relationship between destination competitiveness and safety and security; as a result, the H3 is not supported. According to the response from the interview, Sarawak's safety and security system still falls short of those of other more advanced nations. For instance, most public spaces did not have closed-circuit television (CCTV) available. Remote places lack lampposts and have poorly informed public safety and information technology (IT) security services. All of these things may put visitors at risk and give them a sense of unease. To give people a sense of security both during and after travel, it is critical to comprehend how humans feel safe and secure, which the demands are usually destination specific (Owiyo, 2018). Therefore, governments must consider all the localized safety and security issues, provide an effective solution to address each issue, and possibly eliminate all the safety threats to improve destination competitiveness.

Moreover, according to the statistical findings of this study, the relationship between health services and destination competitiveness was not moderated by mobile technology, and as a result, H5 was not supported. Researchers found that mobile technology can be incorporated into health services and create mobile health (mHealth), which enhances the life of the public (Helbostad et al., 2017; Hussein, 2018). However, this aspect seems irrelevant in improving destination competitiveness. The reason might be due to the trust issue of mobile technology in providing health services for visitors. The visitors are unfamiliar with the destination's health services, primarily when the health services are not delivered face to face. Trust is always a major factor in mobile health services as the users are usually convinced by the credibility of the services and the service providers (Nisha et al., 2019). However, there are many immature health applications available on the market (Vervier et al., 2019). Furthermore, there might be a privacy and security

issue associated with the health services provided by mobile technology (Zhu et al., 2019). This situation causes the visitors to lose their trust in the health services offered through mobile technology of other unfamiliar places and could not enhance the destination competitiveness. It is not a consideration by the visitors when choosing a destination.

6. CONCLUSION, IMPLICATIONS AND LIMITATIONS

In conclusion, this study has provided empirical evidence of one type of soft infrastructure (health services) that influences destination competitiveness. Additionally, it was shown that the relationship between destination competitiveness, safety and security, and government tourism policy was moderated by mobile technology. The study's empirical results have indicated that soft infrastructure development contributes to the growth of the tourism industry, and the use of mobile technology can enhance tourists' travel experiences.

This study provides substantial evidence to the existing body of knowledge on soft infrastructure, mobile technology, and destination competitiveness. Presently, this study examines a few soft infrastructure components and their connections to destination competitiveness. Subsequently, it has been determined that one of the three dimensions of soft infrastructure (health services) has a positive relationship with destination competitiveness. The relationship between governmental tourist policy, safety and security, and destination competitiveness is also significantly moderated by mobile technology. The current study also expands knowledge of soft infrastructure's impact on destination competitiveness as well as mobile technology's impact on these relationships from the viewpoints of Sarawak's visitors. Therefore, it is expected that the current study will contribute to the body of knowledge, enabling related research to be done in the future.

In addition to aiding policymakers, industry stakeholders, and entrepreneurs in comprehending the significance of this research, the outcomes are particularly useful in illustrating how mobile technology can enhance soft infrastructure and destination competitiveness in managing and developing the tourism sector based on the visitors' perception of soft infrastructure's role in destination competitiveness. Subsequently, this research can be utilized by mobile technology developers as a blueprint to design new technologies by considering necessary tourists' demands

that will potentially enhance the aforementioned soft infrastructures to maintain or even enhance competitiveness.

The discovery of this study is not without its shortcomings that need to be examined and subsequently addressed. First and foremost, the present study's limitations mainly stem from the COVID-19 pandemic, which led to a lack of international travellers. Secondly, a cross-sectional approach (the data was collected in a specific period of time) was used to conduct the study rather than a longitudinal approach (data were collected over numerous timeframes). Following that, a significant number of crucial soft infrastructures that could potentially affect destination competitiveness was eliminated from the present analyses.

Subsequently, the limited data from foreign tourists in the current study suggests that future data collection can be gathered from more than a single source, specifically with the inclusion of foreign visitors' perspectives post COVID-19. Furthermore, the expansion of the framework is also advised, whereby the inclusion of soft infrastructures, including financial services, travel services, educational and many other institutions are recommended. Last but not least, it is recommended that similar research can be conducted in different settings like in other states of Malaysia, leading to the possibility for more thorough data collection, which potentially leads to various possible interesting outcomes regardless of consistency.

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Appendix

| Variables | Items No. |
|---|-----------|
| Government Tourism Policy (GTP) | |
| Clarity and ease of tourism policies | GTP1 |
| Ability of tourism policies to be implemented | GTP2 |
| The way tourism policies were formulated | GTP3 |
| Ability of policies in enhancing Sarawak's economy | GTP4 |
| Health Services (HS) | |
| Availability of first aid facilities | HS1 |
| Accessibility to health services (e.g., clinics, hospitals etc.) | HS2 |
| Value of money for private health services | HS3 |
| Accessibility and operating hours of pharmacies | HS4 |
| Safety and Security (SS) | |
| IT security services | SS1 |
| Public security services | SS2 |
| Availability of night patrols | SS3 |
| Street lightings | SS4 |
| CCTV in public spaces | SS5 |
| Destination Competitiveness (DC) | |
| Core resources and attractors (e.g., food, cultural, and historical heritage, beautiful scenery, attractive event and festival) | DC1 |
| Supporting factors and resources (e.g., friendliness of local people, easy-to-reach destinations, quality of public transportation, business skills of local people etc.) | DC2 |
| Destination management (e.g., tourism signing, knowledge of foreign language by staffs, existence of tourism programs and tours, tourism promotional materials in foreign languages etc.) | DC3 |
| Qualifying and amplifying determinants (e.g., location, price, cleanliness and tidiness, destination etc.) | DC4 |
| Mobile Technology (MT) | |
| I think using mobile technology can help me obtain travel information in timely manner | MT1 |
| I think mobile technology makes itinerary planning easy and convenient | MT2 |
| I think mobile technology helps me navigate the location I want to go | MT3 |
| I think mobile technology allows me to plan my itinerary handily at anytime and anywhere | MT4 |
| I think mobile technology has provided user a friendly platform to access and collect information at ease | MT5 |

Appendix 1. List of measurement items