THE LINKAGE OF AIR TRANSPORT MANAGEMENT AND TOURISM DESTINATION DEVELOPMENT

Sanhakot Vithayaporn
Phanrajit Havarangsi
Faculty of Business and Technology, Stamford International University
E-mail: Sanhakot.vithayaporn@stamford.edu
Received October 18, 2022; **Revised** December 8, 2022; **Accepted** December 23, 2022

Abstract

This research aimed to examine and analyze the extent to which the prospective drivers of air transport influence the development of tourism destinations. The determinants of air transport that affect tourism destination development include a preference for the size of the aircraft, a choice for the location of the airport, and a preference frequency of the flights. The literature review of tourism demand based on the consumer behavior theory was conducted to support how tourists are affected by the air transport they use to reach a destination. The self-administered online survey was conducted through convenience sampling of 200 Thai tourists in Thailand who had experience traveling overseas. The data were examined using regression analysis and hypothesis testing. The regression analysis found that aircraft size ($t = 2.1439$, $p = 0.0427$), location of the airport ($t = 1.7330$, $p = 0.0361$), and frequency of the flight ($t = 1.5339$, $p = 0.0403$) have a significant influence on tourism destination development. The findings revealed a positive relationship between preference for aircraft size, which had predictive power over the airport's location, and appreciation for the frequency of the flights. However, the development of tourism destinations was also influenced by the location of the airport and the frequency of the flights. Discussion and conclusions are presented, and the recommendations for future research are to increase the sample size for higher reliability of the sampled representatives and to consider more variables using quantitative analysis. This study employed quantitative research; therefore, further qualitative studies, such as interviews and focus groups, are recommended.

Keywords: Air Transport, Tourism Destination Development, Aircraft Size, Location of Airport, Flight Frequency

Introduction

The perspective of a tourism destination comprises the activities of tourists travelling to and staying in places outside of their residence and usual environment for a period not exceeding one complete year for business, leisure, and other purposes (International Air Transport Association, 2020). Hence, tourism destination development is necessarily involved with the travelling of tourists thus air transport plays a crucial role in spurring the development of the destination. Tourism is one of the major economic sectors in many countries and is gaining increasing importance both in the global and national economies, as it significantly contributes to employment, production, investments, and overall economic prosperity. The purpose of this study is to examine the factors of air transport that influence tourism destination development. The variables of preference for the size of aircraft, airlines' flight frequency, and location of the airport are used to test the hypotheses

Research objectives

1. To examine preferred size of aircraft, affect tourism destination development
2. To assess location of the airport's impact on tourism destination development
3. To determine flight frequency influences tourism destination development

Literature review

Tourism demand and consumer behaviour theory

Competitiveness among tourism destinations was investigated by Wilde et al. (2017) that it was strongly related to the capability of a destination to provide those elements of tourism experiences more effectively. Hence, there is a need to examine the transportation that provides accessibility to reach the destination. Availability of a broad variety and a mix of services and products is strongly favoured by consumers, including forms of transport.

The influence of aircraft size on tourism destination development

When determining the size of aircraft and the frequency of services, airlines base their decisions on the tactical and operational dimensions. They are constrained by their decisions regarding their routing structure and strategy-level choice of aircraft size (Lohmann & Vianna, 2016). The analysis conducted by the management of airlines starts

with the market level by considering a single origin and destination, and the strategic choices involving flight frequency and aircraft size are assumed to be consistent with their decisions regarding the routing network (Duval & Schiff, 2011). It can be argued that the accessibility to destinations is diminished when airlines operate with small airplanes because some passengers perceive that flights flown with larger planes are safer than those on small aircraft. Therefore, the development of tourism destinations is significantly dependent upon size of the aircraft.

Hence, the first hypothesis of the study has been constructed as follows:

H1. The preference for size of the aircraft is positively related to tourism destination development.

Airport location's contribution to tourism destination development

The discussion of Spasojevic et al. (2018) mentioned that from the perspective of the public, it is generally considered that airports have always been public facilities that are mostly focused on facilitating the efficient and safe movements of passengers and aircraft rather than commercial enterprises. Among an airport's numerous customers, the two most important ones are the passengers and the airlines; however, the techniques used for marketing to these two customer types are different (Graham & Dennis, 2010). However, the extent of an airport operator's influence on passengers is intrinsically limited because the airport's location and the services offered by the airlines have already determined many of the decisions of the passengers (Dobruszkes, 2013). For this reason, the marketing of many airports is directed toward the airlines, and it can be argued that it is a more important factor in an airport's success.

Hence, the second hypothesis of the study has been constructed as follows:

H2. The preference for the location of the airport is positively related to tourism destination development.

Airlines' flight frequency and tourism destination development

Another factor that influences the development of tourism destinations is the number of flights to a specific destination that the airline offers. Airline flight frequency was studied by Goeldner and Ritchie (2012), who defined it as the number of flights provided to the destination that the airlines have scheduled per day, week, month, or even year. There is a preference for destinations that are accessed by a greater number

of flights over other destinations because of the lower prices and increased convenience and reliability. This is due to the passengers feeling safer about the possibility that there may be a delay or cancellation of their first flight, which would make it impossible to make the connection with the second flight because they can easily rebook on the next scheduled daily flight when there are several flights available.

Hence, the third hypothesis of the study has been constructed as follows:

H3. The preference for frequency of the flights is positively related to tourism destination development.

Air transport and tourism destination development

The success of tourism destination development not only has natural, cultural, or man-made attractions at the destination to compete in the tourism sector. Transport is the accessibility dimension to provide visitors with access to the destination (Spasojevic et al., 2018; Vithayaporn, 2021). Likewise, airlines and airports will often be in the mindset of the tourists when planning for their trip. The development of tourism destinations offers the expansion of the entire aviation industry, and the results of this expansion will provide extensive benefits to air transport (Zhang & Graham, 2020).

Conceptual Framework

Based on the research objectives and background of the study, the literature review was conducted to construct the conceptual framework of the research.

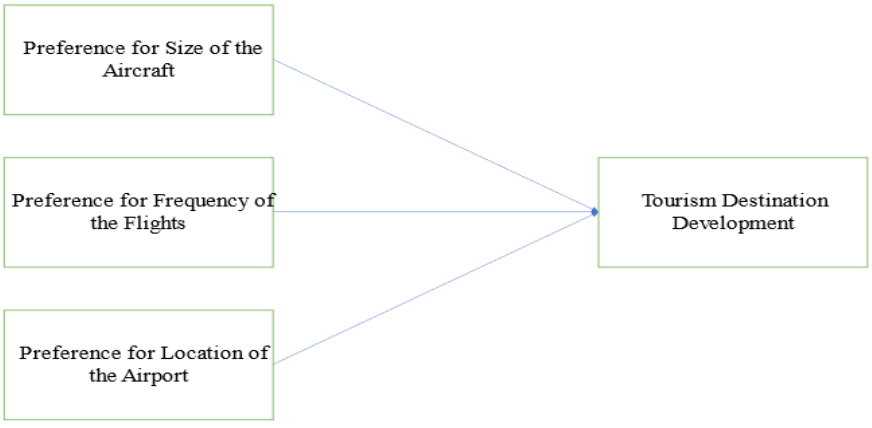


Figure 1 Research model of this study (Source: Developed by the authors)

Methodology

A quantitative approach by collecting data with closed-end questionnaires (Likert rating scale). The questionnaire items were developed by the researchers based on the literature review and previous research. In the measurement of reliability, the alpha coefficient of Cronbach was needed to standardise all constructs at 0.70 to confirm the reliability of the items. The main variables were all measured using a five-point Likert scale as follows: (5) strongly agree, (4) agree, (3) neutral, (2) disagree, and (1) strongly disagree (Limna et al., 2022; Limsangpetch et al., 2022).

Table 1 Variables in this study (N=200)

No.	Dependent Variable	Scale of Measurement	Unit
1	Tourism Destination Development	Ordinal Category	5-point Likert scale**
	Independent Variables		
1	Gender	Nominal Category	0 Male, 1 Female
2	Marital Status	Nominal Category	0 Single, 1 Married, 2 Other
3	Age	Ordinal Category	15-25, 26-35, 36-45, 46-55, 55 and up
4	Education	Ordinal Category	0 Diploma, 1 Bachelor, 2 Master's degrees and higher
5	Income	Ordinal Category (Thai Baht)	25,000 – 30,000 30,001 – 35,000 35,001 – 40,000 40,001 – 45,000 45,001 – 50,000 50,000 and higher
6	Preference for size of the aircraft	Ordinal Category	5-point Likert scale**
7	Preference for location of the airport	Ordinal Category	5-point Likert scale**
8	Preference for frequency of flights	Ordinal Category	5-point Likert scale**

Dependent variable

Tourism destination development is predicted to be increased by the independent variables, which were examined using a survey questionnaire to investigate the results by individual independent variables.

Independent variables

Three independent variables were examined to identify which of the followings have the main effect on the dependent variable and which do not have an effect.

Population and Sample

The population was defined as unknown but includes those persons in Thailand who travel by air to visit tourism destinations. The sample was tourists over 18 years old who had experienced commercial airline travel to international tourism destinations for leisure or business purposes. According to Si Dah et al. (2022), it must be five respondents per question item (5:1). 16 question items are multiplied by five, resulting in 90 required respondents. However, this study's sample was determined 200, exceeding a minimal sample size, and employed convenience sampling (Taherdoost, 2016).

Data Collection

A self-administered questionnaire was used alongside survey-based research that was designed using online platforms as a medium and employed convenience sampling. The questionnaire was created online via Google Forms in consideration of health concerns during the Covid19 pandemic. The primary data were collected from 1 March to 30 April 2022. The questionnaires were sent out via social media, i.e., Facebook, Line chat, and WhatsApp. Social media platforms help alleviate such issues and enhance traditional data collection methods; likewise, other scholars conducted research amid the pandemic using the social media platforms approach (Leighton et al., 2021). Furthermore, social media is an effective tool to reach out to tourists' decisions on destinations studied by Tham et al. (2020). The questionnaires were sent out to 360 respondents, with a response of 205 equal to a 56.09 percent response rate. Therefore, 200 sets of data were analysed.

Data Analysis

Regression analysis, a quantitative approach was designed to conduct regression analysis as the most popular form of multivariate analysis using R program software to analyse the results. Moreover, the regression model can be analysed differently from the correlation. The regression model examines the values of independent variables (IV) to predict the value of the dependent variable (DV). This study uses a regression model to analyse the data.

Multiple regression model

Multiple regression analysis is an extension of simple regression used to predict an outcome (Favero & Belfiore, 2019); variable (y) is based on multiple distinct predictor variables (x). The mean and standard deviation of each variable and questionnaire items were interpreted for the results. As recommended by Hasanzadeh et al. (2019), Cronbach's alpha was set at 0.7, factor loadings were set at 0.7, and average variance extracted (AVE) was set at 0.5 for reliability criteria.

Results

The data (n = 200) were analysed for the demographic results, which show that the participants were mostly male (68.0 percent), single (58 percent), aged 46-55 years (42.0 percent), educated with a bachelor's degree (57 percent), and earned an average monthly income of 40,000-45,000 Thai Baht (29.0 percent) is equivalent to 1,270 US Dollar which represents above average GDP per capita by monthly of 607 US Dollar in Thailand (World Bank, 2021). The descriptive data of demographics are shown in Table 2.

Table 2 Frequency of demographic data

Variable (n = 200)	Number (%)
Gender	
Male	**136 (68%)**
Female	64 (32.0%)
Rather not say	0 (0%)
Marital Status	
Single	**116 (58%)**
Married	72 (36%)
Other	12 (06%)
Age (years)	
15-25	10 (5.0%)
26-35	26 (13.0%)
36-45	60 (30.0%)
46-55	**84 (42.0%)**
56-65	20 (10.0%)
Educational level	
Diploma	14 (7.0%)
Bachelor's degree	**114 (57.0%)**
Master's degree or higher	72 (36.0%)

Variable (n = 200)	Number (%)
Monthly income (baht)	
25,001 - 30,000	14 (7.0%)
30,001 - 35,000	20 (10.0%)
35,001 - 40,000	16 (8.0%)
40,001 - 45,000	**58 (29.0%)**
45,001 - 50,000	54 (27.0%)
> 50,000	38 (19.0%)

Outputs resulting from the item analysis represent the reliability of the question items, which are measured by Cronbach's alpha. Factor loadings, mean and standard deviation of individual items are also presented in Table 3.

Table 3 Items Loading, Cronbach's Alpha and Average Variance Extracted (n = 200)

Factors of Air Transport	Factor loading	Mean	SD
Cronbach's Alpha = 0.783, AVE = 0.756			
Preference for aircraft size			
I choose the size of the aircraft to travel on.	0.814	4.095	0.760
The bigger size of the aircraft has influenced me to purchase the tickets from the airline.	0.789	4.055	0.787
I like to fly with larger aircraft rather than smaller ones.	0.789	4.005	0.678
I consider that flying in a small aircraft is not safe.	0.790	4.070	0.595
Total	**0.789**	**4.055**	**0.694**
Cronbach's alpha = 0.743, AVE = 0. 782	0.792	4.002	0.491
Preference for airport location			
I prefer to travel to a destination that is close to the airport.	0.787	3.980	0.548
The airport that is close to the destination has the advantage to increase the number of tourist arrivals.	0.810	4.022	0.510
It is necessary to consider the distance between the airport and the destination.	0.788	4.025	0.500
The destination that is close to the airport has more development.			
Total	**0.794**	**4.052**	**0.512**

Factors of Air Transport	Factor loading	Mean	SD
Cronbach's alpha = 0.792, AVE = 0.745			
Preference for the frequency of the flights			
I prefer to choose the airline that has more frequency to that destination.	0.788	4.035	0.490
More frequent flights will increase the number of tourists arriving.	0.789	4.055	0.485
The frequency of the flights has an influence on tourism development at the destination.	0.787	4.025	0.458
Increasing the frequency of flights will increase the quality of tourism development.	0.798	4.047	0.479
Total	**0.790**	**4.025**	**0.478**
Cronbach's alpha = 0.756, AVE = 0.687			
Tourism destination development			
I perceive that the aircraft size is positive for tourism destination development.	0.835	4.160	0.670
I perceive that the location of the airport is positive for tourism destination development.	0.712	4.044	0.458
I perceive that the frequency of the flights is positive for tourism destination development.	0.798	4.055	0.479
Overall, aircraft size, location of the airport, and frequency of the flights are positive for tourism destination development.	0.822	4.168	0.670
Total	**0.831**	**4.095**	**0.569**

The data (n = 200) were analysed for this study. The Summated Likert Rating is considered to measure independent variables, and it was found that Preference for aircraft size shows the strongest mean at 4.055, Preference for airport location was at a mean of 4.052 and Preference for the frequency of the flight shows a mean of 4.025. Meanwhile, the overall influence of air transport on tourism destination development was measured at a mean of 4.095, which is the highest impact on tourism destination development. Tourism destination development is the strategic planning to examine the desirable destination for the traveller to visit the destination to make decisions for the drivers of air transport.

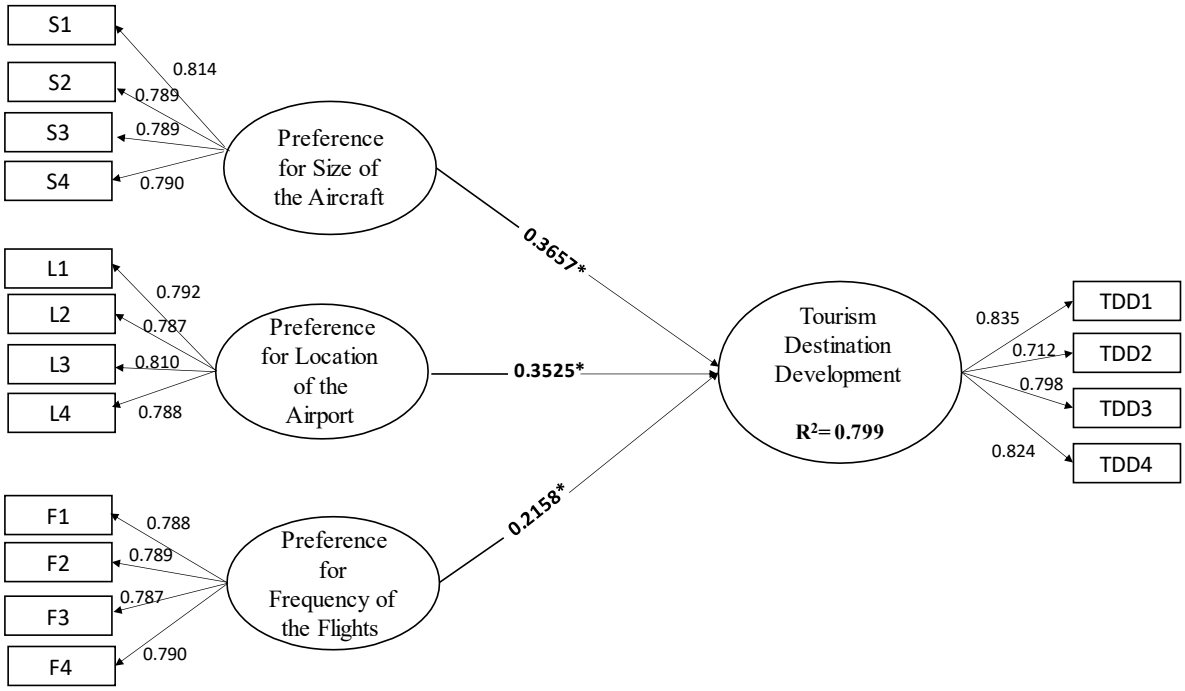


Figure 2 Regression model of the study

Regression results

Table 4 Factors influencing tourism destination development

Regression Statistics	*Aircraft Size*	*Location of the Airport*	*Frequency of the flights*
Beta	0.2303	0.1508	0.1942
R-Square	0.0531	0.0227	0.0377
Adjusted R-Square	0.0336	0.0027	0.0180
Standard Error	0.6595	0.6699	0.6648
Observations	200	200	200

Table 5 R-Square of a dependent variable

Construct	Coefficient of Determination (R^2)	Adjusted R-Square (R^2)
Tourism Destination Development	**0.799**	**0.796**

Table 6 Total effects interface

Variables	*Coefficients*	*Standard Error*	*t-stat*	*P-value*
Size of the aircraft – Tourism Destination Development	0.3657	0.1506	2.1439	0.0427
Location of the airport – Tourism Destination Development	0.3525	0.1910	1.7330	0.0361
Frequency of the flight – Tourism Destination Development	0.2158	0.2039	1.5339	0.0403

Dependent variable: Tourism Destination Development ** ($p < 0.05$) significance level

Table 7 Hypothesis results interpretation

Hypothesis testing		
Hypotheses	**Result**	**Outcome**
H1: Preference for size of the aircraft ⟶ Tourism Destination Development	$P = 0.0427$ $(\boldsymbol{at}\ \boldsymbol{\rho}\ 0.05)$	Accepted
H2: Preference for location of the airport ⟶ Tourism Destination Development	$P = 0.0361$ $(\boldsymbol{at}\ \boldsymbol{\rho}\ 0.05)$	Accepted
H3: Preference for frequency of the flight ⟶ Tourism Destination Development	$P = 0.0403$ $(\boldsymbol{at}\ \boldsymbol{\rho}\ 0.05)$	Accepted

Overall, the R2 (0.80) value indicated approximately 8% of the variation in the dependent variable was accounted for by the set of predictors. The influence of air transport on tourism destination development can be explained by 80% (R2 = 0.80). The regression analysis found that aircraft size (t = 2.1439, p = 0.0427), location of the airport (t = 1.7330, p = 0.0361), and frequency of the flight (t = 1.5339, p = 0.0403) have a significant influence on tourism destination development.

Discussion

The study uses the independent variables of aircraft size, location of the airport and frequency of the flights to predict the development of tourism destinations. Preference for aircraft size supported the previous study of Duval and Schiff (2011) on the impact of air transport services on tourism demand. The findings of preference for the location of the airport also supported Bieger and Wittmer (2006), Efthymiou et al.

(2016), Halpern and Graham (2015), Lei and Papatheodorou (2010), and Spasojevic et al. (2019), the previous research that investigated whether airline-airport-destination are linked in terms of strategic route development. In this study, however, there was no specific airport to be measured, but overall, tourists' perception of the location of the airport influences the decision-making of destination choice for tourism. The study also confirmed the research work of Goeldner and Ritchie (2012), Lubbe (2000), Syratt and Archer (2003), Botha et al. (2002), and Vitanen (2013), in that the development of a tourism destination depends on the number of flights offered by airlines; however, the flight schedule is also considered. This impacts tourists' attitudes towards safety and reliability during their trips. Also, the second airport (in the case of Thailand, Don Mueang International Airport) must be utilised to the maximum extent possible to alleviate the congestion and insufficient service to the main airport. Consequently, the findings are strongly in line with the consumer behaviour theory as individuals are willing to utilise and take their consumption decisions based on their preferences, budgetary concerns, and other applicable conditions.

Conclusions

The purpose was to determine the extent to which a specific phenomenon occurs. Three research objectives and the related hypotheses guided the understanding of the relationship between the independent variables of size of the aircraft, location of the airport, frequency of the flights, and the dependent variable of tourism destination development. The study focused on Thai travellers who have travelled by air to visit international tourism destinations. Based on the result found support three hypotheses. These results are significant in the context of the present study, which found the direct effects of the variables to be statistically significant.

Subsequently, the three research objectives were achieved. The results show that the predictor of aircraft size leverages the opportunity for tourism destination development in terms of the destination requiring the efficiency of airport facilities and operations to support the demands of tourists. This is linked to the location of the airport, which must be strategically placed in a convenient location that also allows airlines to increase their business through the frequency of the flights. Moreover, the last research question regarding frequency of the flights can be a guideline for the airlines to plan their flight schedule so that it is aligned with the operating aircraft's size and the

facilities of the airport's location. This research concludes that there is an interdependency between these three variables, which is aligned with the view of the International Air Transportation Association (IATA).

The three key factors have built a coherent narrative: literature gaps have been identified, the results have shown the impacts on tourism destination development, and the conceptual framework shows how air transport interacts with tourism destinations. On these grounds, it can be argued that air transport and tourism destination development is not only a fascinating area in which to undertake research studies but also that there are numerous different and relatively unexplored avenues to examine.

The implications of the research

In addition, the implication of this research from the academic perspective, this research adopts consumer behaviour theory which is predominantly used in consumer research, defining traveller or tourist as the end-consumer of the air transport and tourism industry. Air transport management in such airline business is proven not only accessibility to facilitate tourists reach their destination, adjusting and managing airlines' resources of aircraft, flight schedule, and strategic airport operation becomes an effective tool for airline business plans to support the development of tourism destination that is aimed contribution of this research from a practitioner perspective as the proposed model of the research implication see Figure 3.

Limitations and future research recommendation

Inevitably, several limitations were faced. Firstly, this research study was conducted at a cross-sectional point rather than using a longitudinal research design. Also, future researchers should conduct further investigation on other independent variables that might affect the tourism destination development not only in Thailand but also in other destinations in air transport hub countries. The use of a qualitative approach with in-depth interviews is also recommended to obtain insights into and information on which other factors influence tourism destination development.

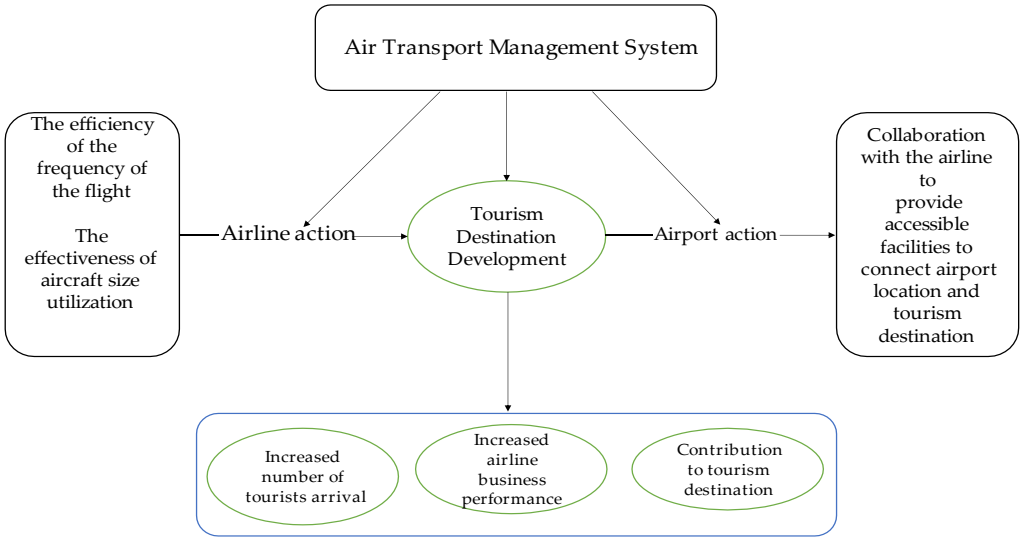


Figure 3: Proposed model of the study (Source: Developed by authors)

References

Dobruszkes, F. (2013). The geography of European low-cost airline networks: A contemporary analysis. *Journal of Transport Geography*, 28, 75–88.

Duval, D. T., & Schiff, A. (2011). Effect of air services availability on international visitors to New Zealand. *Journal of Air Transport Management, 17*(3), 175–180.

Fávero, L. P., & Belfiore, P. (2019). Binary and Multinomial Logistic Regression Models. In *Data Science for Business and Decision Making*. Retrieved on 30 September 2022, from https://doi.org/10.1016/b978-0-12-811216-8.00014-8

Graham, A., & Dennis, N. (2010). The impact of low-cost airline operations on Malta. *Journal of Air Transport Management*, *16*(3), 127–136.

Goeldner, C., & Ritchie, J. (2012). *Tourism Principles, Practices and Philosophies*. (12*th* ed.). Wiley Press.

Hasanzadeh, S., Jafarabadi, M.A., & Sadeghi-Bazargani, H. (2019). Validity and Reliability of the Attention- deficit/ hyperactivity disorder (ADHD) in Epidemiological Studies: Partial Least Squares-Based Confirmatory Factor Analysis. *Journal of Injury and Violence Research*, *11*(4 Suppl 2).

Leighton, K., Kardong-Edgren, S., Schneidereith, T., & Foisy-Doll, C. (2021). Using social media and snowball sampling as an alternative recruitment strategy for research. *Clinical simulation in nursing*, *55*, 37-42.

Limna, P., Siripipatthanakul, S., Woodeson, K., Chuaykam, S., Siripipattanakul, S., & Auttawechasakoon, P. (2022). The Relationship Between COVID-19 Perceptions, COVID-19 Worries and Behavioural Changes Among the Students of Ammartpanichnukul School in Krabi, Thailand. *Asia-Pacific Review of Research in Education*, *1*(1), 1-14.

Limsangpetch, V., Siripipatthanakul, S., Phayaphrom, B., & Limna, P. (2022). Modelling Knowledge Management on Business Performance Through Mediating Role of Organisational Innovation Among IT Staff in Bangkok, Thailand. *International Journal of Behavioral Analytics*, *2*(2), 1-17.

Si Dah, N., Siripipatthanakul, S., Phayaphrom, B., & Limna, P. (2022). Determinants of Employee Innovation: A Case of NGOs and CSOs in Mae Sot, Thai Myanmar Border. *International Journal of Behavioral Analytics, 2*(1), 1-15.

Spasojevic, B., Lohmann, G., & Scott, N. (2018). Air transport and tourism – A systematic literature review (2000– 2014). *Current Issues in Tourism, 21*(9), 975– 997. Retrieved 15 September, 2022, from https: / / doi. org/ 10. 1080/ 13683500. 2017.1334762

Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *International Journal of Academic Research in Management,* 5, 18-27.

Tham, A., Mair, J., & Croy, G. (2020). Social media influence tourists' destination choices: Importance of context. *Tourism Recreation Research*, *45*(2), 161-175.

Vithayaporn, S. (2021). COVID-19 Pandemic–A Testing Time for Tourism and Hospitality in Thailand. *ABAC ODI Journal Vision. Action. The outcome*, *8*(1), 41-53.

Wilde, S. J., Cox, C., Kelly, S. J., & Harrison, J. L. (2017). Consumer insights and the importance of competitiveness factors for mature and developing destinations. *International Journal of Hospitality & Tourism Administration*, *18*(2), 111-132.

Zhang, F., & Graham, D. J. (2020). Air transport and economic growth: a review of the impact mechanism and causal relationships. *Transport Reviews*, *40*(4), 506-528