

Critical Success Factors for the Development and Sustainability of Smart Tourism in Laos, A Case study of Oudomxay Province

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ABSTRACT

The purpose of this research is to identify the critical factors necessary for the development and implementation of smart tourism in Laos. Smart tourism which has been the new trend in tourism over the last decade was born out of the application of modern technological devices for accessing tourist attractions, information, sites, and other hospitality services due to the increased use and proliferation of digital devices, laptops, computers and increased connectivity around the world.

However, smart tourism has unfortunately not been sufficiently exploited in Laos. As Laos cannot yet boast of any smart tourist destinations due to the lack of development of the appropriate technological and logistical infrastructure to support smart tourism. As a result, Laos is not yet reaping from the many economic benefits of smart tourism which are very enormous.

The research has been able to identify the influential success factors necessary for Oudomxay a notable eco-tourism location to be upgraded to a smart tourist destination. The research made use of a quantitative and qualitative method of a SWOT analysis combined with the AHP Model. We were able to determine the critical strategic factors necessary for transforming Oudomxay into a smart tourist destination by combining SWOT with AHP techniques.

We enhanced the SWOT analysis with a multicriteria decision-making technique called the Analytic Hierarchy Process (AHP). AHP approach achieves pairwise comparisons among factors or criteria in order to prioritize them using the eigenvalue calculation. The aim of applying the combined method is to improve the quantitative side of strategic planning. Calculated priorities of SWOT factors could Good Number of Eco and Nature tourist attractions is the most important factor to be considered with an overall priority value of (0.197) for strength. For Opportunities, Government intervention plan to upgrade to Smart City carries the highest points. (0.185), while for weakness. Lack of Digitalized Public Transportation (0.124) is the highest and for threats, Increased cost of living or inflation. (0.086) The Conceptual model elucidated and highlighted the critical success factors for the successful implementation of smart tourism in Oudomxay.

The results obtained can be used to develop a detailed management approach for critical decision making or to develop a set of appropriate alternatives strategy for the development, implementation, and sustainability of smart tourism in Oudomxay. This Research aims to increase the competitive advantage of Oudomxay to be a unique and exotic tourist destination and to update the Ideas of previous research works on the tourism industry of Laos.

Key Words: Smart Tourism, Smart Tourism Destination, Eco-Tourism, Nature-Tourism, Technology and Tourism.

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1. Introduction

With the inception and development of modern technologies like the internet and portable mobile digital devices that are primarily used to access and transfer information. The way people formally access information which is the traditional medium of television, Newspaper, Magazine, words of mouth or Radio has been impacted forever.

Quite recently, many changes have been observed in tourism consumer tastes due to the new ways by which there can access information about potential tourist destinations. It has been revealed that modern-day tourists do not only want to experience what others have experienced before but also want new and more personal experiences. As a result of this demand, it is imperative that the tourism industry evolves and adapt (Neirotti, De Marco, Cagliano, Mangano, & Scorrano, 2014). Also, the application of new technologies in tourism means that consumers now have access to a wide range of tourism destination options, as well as access to the opinions and evaluations of other individuals who have experienced the destination before with just a click on their devices. Having access to such information can generate a high degree of confidence when choosing a destination, especially if the destination is underexploited or obscure.

Also Ivars-Baidal, Celdrán-Bernabeu, Mazón, and Perles-Ivars (2019) asserted that ICTs have provided new tools for the tourism industry, thereby giving rise to new experiences for tourists. Likewise, the swift uptake of mobile technologies by tourists and visitors has enabled travelers to consume individualized information, regardless of the site and situation in which they are located (Lamsfus, Wang, Alzua-Sorzabal, & Xiang, 2015). This trend has now led to the phenomenon or concept

currently called “Smart Tourism”

2. Literature Review

2.1 Smart Tourism

In today’s technological driven world, tourism can be said to be one of the largest industries in terms of employment creation and also acts as support system for several other industries. According to the UNWTO (2015), tourism is a “social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes”. Also “Statistics on ICT use in Tourism” (2018) statistics data explains tourists prefer online services to book their travel plan than regular offline service. The percent of such tourists increase day by day and in present scenario 60% for air travel, 55% for accommodations and 50% for railway or waterway tickets in European Union.

According to Rashmi (2018). India is currently seeing information services growing rapidly in tourism as the online booking of tickets and hotels services experiences a visible growth. In last few years rail ticket bookings grown up to 54.52% in 2014-15 compared to the traditional counter booking which was 38.54% in 2011-12 with a clear increase of 16 percent (Dubudu, 2016). The online travel sales volume in India increased to 30.61 billion US dollar in 2016 from 5.37 billion US dollar in 2010 with an increase of all most 600 percent (“Online travel sales,” 2017)

Also Buhalis and Amaranggana (2013), postulated that ICTs incorporate a whole series of electronic instruments that facilitate the operational and strategic management of institutions and companies in matters such as information and knowledge management, as well as communication and

interaction with interest groups (Stake holders). We are clearly facing a digital revolution that has substantially modified tourism management (Gretzel, Sigala, Xiang, & Koo, 2015)

Based on the above facts, it is very obvious that ICTs has provided the tourism industry with new innovative tools giving rise to the creation of new experiences for tourist. Also, the swift uptake of mobile technologies by tourists and visitors has enabled travelers to consume individualized information, irrespective of the site or situation in which there are located (Lamsfus et al., 2015).

According to Gretzel et al. (2015) 'smart' has become the buzzword to describe technological, social and economic developments propelled by new technology by using sensors, connectivity, big data, information exchange between industry and end users. Combining tourism to the term, it can be understood that it directs towards smart destination development, smart experience and smart business systems. As a matter of fact, the important of ICTs to the tourism industry cannot be over emphasized. Many researchers have pointed this out in their research articles (Gretzel et al., 2015; Lamsfus et al., 2015)

Based on these facts, it is imperative that both public and private sectors of the tourism industry invest in ICTs to improve their competitive advantage and their management. By following this context that is characterized by the extensive use of information and technological innovation. ICTs has enabled new services and the reconversion of traditional ones through the adoption of new ideas and approaches to tourism development. This is where the proposal from the development of a smart tourism destination in Laos streamed from. Smart business system and smart expression of experience and information or data are

considered as components of smart tourism (Vasavada & Padhiyar, 2016)

Data is connected with the other three and they are inter-connected with each other through collection, exchange and processing of information. Though ICT plays an important role but smart tourism is not all about technology, it is about agility. The dimension of smartness like human capital, social capital, governance and innovation also puts effect in smart tourism. According to Buhalis "Smartness is fostered by open innovation, supported by investments in human and social capital, and sustained by participatory governance, in order to develop the collective competitiveness of tourism destinations to enhance social, economic and environmental prosperity for all stakeholders and generate value for visitors (Buhalis & Amaranggana, 2013)

2.2 Study Area.

2.2.1 About Oudomxay

With the integration of a rich cultural heritage, under visited Pristine forest, Water falls, Caves, Valleys, Lush vegetation, Modern facilities and a strong Economic base. Oudomxay has the potential to be a very famous and popular Smart tourism destination in South East Asia. Oudomxay is located in the Northeast of Laos with a population of over 300,000 people. The capital city is Meuang Xay. The province covers an area of 15,370 square kilometers (5,930 sq miles). It is bordered by China to the North, and a major transit point for flow of goods between Vietnam, China and Thailand. It is also bordered by Phongsali province to the North East, Luangprabang Province to the East and South East, Xaingabouly province to the south and south west, Bokeo Province to the West, and Luang Namtha Province to the Northwest. The topography of Oudomxay is mountainous, between 300-1,800 meters (980-5910ft) above sea Level. Oudomxay Province consists of 7 districts: Meuang

Xay,Meuang Namor,Meuang La,Meuang Beng,Meuang Hoon,Meuang Pakbeng and Meuang Nga.(Tourism Laos,2020).

Apart from Tourism, Oudomxay has the potential of becoming a major economic hub in the near future due to its strategy broader location with China and 4 other provinces. The Construction of the China-Laos Railway is set to bring much more tourist and business prospects to Oudomxay. The city holds the fame of one of the two planned “Smart” and “Eco” Cities by the Laos Government.

A plan to create “Smart” and “Eco” cities in Luang Namtha, and Oudomxay provinces topped the agenda at the government’s monthly meeting for October. Prime Minister Thongloun Sisoulith presided over the meeting on October 25, at which government members also discussed a draft report on the implementation of this year’s socio-economic development plan, the budget and monetary plans, and plans for next year. A Memorandum of Understanding on a feasibility study for the development of smart and eco cities in Luang Namtha, and Oudomxay provinces by Thailand’s AMATA Corporation was discussed.

The meeting agreed that sufficient economic analysis had been made for the project, which complied with the government’s direction on investment promotion, domestic production, and development along the Laos-China railway route. “This project will support the use of the Laos-China railway and contribute to the socio-economic development of our country. “a statement from the Prime Minister’s Office said.

2.2.2 SWOT Analysis of Oudomxay

<p>Strength:</p> <ul style="list-style-type: none"> • Geographic Positioning • Local Airport • Diversified Tourism Sector • Large Number of Accommodations 	<p>Weakness:</p> <ul style="list-style-type: none"> • Lack of Digitalized Public Transportation • Lack of Adequate Publicity (e-commerce Website or mobile app)
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Oudomxay Provincial Governor Khamphan Pheuyyavong said the under-construction railway will run for 126.6 km through the province, so officials are looking at ways to capitalize on this by bolstering business alongside the railway, Local Daily Vientiane Times reported on Wednesday October 20th 2019.

He Also said that “There are plans for the province to become an economic, cultural and social hub, with a focus on service provision and tourism. Officials have signed memorandums of understanding with three companies to draft a plan for economic development and build new townships near railway stations,” said the governor.

A survey is also being carried out to gather information and devise a plan to link localities of Oudomxay province and nearby Luang Namtha province to bordering areas of China.

There are also plans to develop the agricultural sector and build a modern township in the province, so as to benefit from the railway, according to the report.

The 414-km China-Laos Railway runs from Boten bordering China in northern Laos, via Oudomxay Province, to the capital of Vientiane with an operating speed of 160 km per hour. The project which began construction in December 2016 is scheduled to be operational by 2021(Yamei, 2019)

<ul style="list-style-type: none"> • Domestic Market • High Growth Rate <p>Good number of eco and nature tourist attractions</p>	<ul style="list-style-type: none"> • Lack of Flexibility to access destination • Language Barrier <p>Needs development to attract off season visitors.</p>
<p>Opportunity:</p> <ul style="list-style-type: none"> • Government intervention plan to upgrade to smart City. • Addition of New products and services e.g. MICE Center. Meetings, incentives, conferences and exhibitions (MICE) • New markets with commissioning of Lao-China Railway. • Growing demand for Eco and Nature tourism 	<p>Threats:</p> <ul style="list-style-type: none"> • Increased Traffic • Increased Pollution • (Noise/sound, air pollution & material waste) • Increased cost of living or inflation • Damage to natural sites due to influx of tourists. • Increased crime rate

Fig .1 SWOT Analysis of Oudomxay

2.2.3 Objectives of the Study

The proposed study has been conceptualized with the following objectives:

- 1) To study the smart tourism concept in Laos context with special reference to the proposed smart city establishment in Oudomxay by the Laos Government.
- 2) To study the prospects and challenges of smart city and smart tourism development in Oudomxay.
- 3) To identify critical factors necessary for the successful integration of smart tourism into eco-tourism industry in Oudomxay

3. Methodology

Analytic Hierarchy Process Model (AHP) is a multicriteria decision making technique that can help express the general decision operation by decomposing a complicated problem into a multilevel hierarchical structure of objective, criteria and alternatives. AHP performs pairwise comparisons to derive relative importance of the variable in each level of the hierarchy and / or appraises the alternatives in the lowest level of the hierarchy in order to make the best decision among alternatives. AHP is an effective decision making method especially

when subjectivity exists and it is very suitable to solve problems where the decision criteria can be organized in a hierarchical way into sub-criteria.

AHP is used to determine relative priorities on absolute scales from both discrete and continuous paired comparisons in multilevel hierarchic structures [23]. The prioritization mechanism is accomplished by assigning a number from a comparison scale (see Table 1) developed by Saaty (1980) to represent the relative importance of the criteria. Pairwise comparisons matrices of these factors provide the means for calculation of importance.

AHP performs pairwise comparisons between evaluation factors in order to prioritize them using the eigenvalue calculation. In typical SWOT analysis, the weightiness of the factors is not quantified to determine the effect of each factor on the proposed strategy alternatives. SWOT analysis does not provide means of systematically determining the relative importance of the criteria or to assess decision alternatives according to the criteria. In order to handle this insufficiency, the SWOT framework is converted into a

hierarchical structure and the model is integrated and analyzed using the AHP with its eigen value calculation method.

The objective in utilizing the AHP within SWOT framework is to systematically qualify SWOT factors and equate their intensities. The proposed method is applied in three steps. The first step is to list the considerable internal (strengths and weaknesses) and external (opportunities and threats) factors for the strategic planning, making-up the SWOT analysis. The second step applies the pairwise comparisons to capture the weights of each SWOT group.

Finally, the third step uses the AHP to derive the relative priorities of each factor within the SWOT groups. Then, the overall factor weight rank is obtained by multiplying the factors local weights by the specific group weight.

Kurttila, Pesonen, Kangas, and Kajanus (2000), developed an integrated SWOT analysis with AHP to make factors commensurable and to support a more quantitative basis in the strategic planning. This enhanced method has been broadly applied and studied in miscellaneous areas: from the view of applications, the integrated SWOT AHP method has been used to determine the outsourcing decisions for sport marketing, evaluate the management strategies of a forestland estate, evaluate the tourism revival strategic marketing plan for Sri Lanka, strategic planning of natural resource management, analyze the global competitiveness of manufacturers of machine tools, formulate the strategy of the safe carriage of bulk liquid chemicals in tankers, determine the business strategy in textile firm, establish the strategy for Turkish chemicals industry, analytical investigation of marine casualties at the Strait of Istanbul [16], shipping registry selection in maritime transportation industry, strategic

implementation of integrated water resources management in Mozambique.

The AHP method is based on three principles: first, structure of the model; second, comparative judgment of the criteria and/or alternatives; third, synthesis of the priorities. In the literature, AHP, has been widely used in solving many decision-making problems. In the first step, a decision problem is structured as a hierarchy. AHP initially breaks down a complex multicriteria decision making problem into a hierarchy of interrelated decision elements (criteria, decision alternatives). With the AHP, the objectives, decision criteria and alternatives are arranged in a hierarchical structure similar to a family tree. A hierarchy has at least three levels: overall goal of the problem at the top, multiple criteria that define alternatives in the middle, and alternatives at the bottom level.

In this study, we use the AHP for prioritization of SWOT elements. Once the problem has been decomposed and the hierarchy is constructed, prioritization procedure starts in order to determine the relative importance of the criteria. In each level, the criteria are compared pairwise according to their levels of influence and based on the specified criteria in the higher level. In AHP, multiple pairwise comparisons are based on a standardized comparison scale of nine levels.

Let $C = \{C_j \mid j = 1, 2, n\}$ be the set of criteria. The result of the pairwise comparison on n criteria can be summarized in an $(n \times n)$ evaluation matrix A in which every element a_{ij} ($i, j = 1, 2, n$) is the quotient of weights of the criteria. This pairwise comparison can be shown by a square and reciprocal matrix.

The main idea in utilizing the AHP within the SWOT frame is to systematically appraise the SWOT factors and make them commensurable as regards their weightiness. In this study, the AHP structure results from

the SWOT matrix and is separated in three parts: (a) goal to be achieved by the decision, (b) the SWOT groups and (c) the factors included within each SWOT group (sub-criteria). The hierarchical representation of the SWOT structure is shown in Fig. 2. The exploratory study is based on qualitative research approach. The data for this study were gathered from different secondary sources like archives of journals, magazines, and media contents, official reports of Government, periodicals and from different web sources. Content analysis and personal observation in the study area was carried out for the research work.

To create a SWOT-AHP based strategic management model, we designed the following three phase's model: building initial task; modifying factors, and building an evaluation model (Figure 1).

Firstly, SWOT analysis is carried out and matrix is structured. The relevant factors and internal environment are defined and built in the SWOT matrix.

4. Findings Destination accessibility and the seamless integration of a destination's transport infrastructure are critical for tourism business success, especially for Asian and international markets. Regional support for route development to improve and expand air access for international customers is important in this context. For instance, in the United Kingdom, Glasgow, Manchester and Newcastle Gateshead all offer direct air links to a vast array of national and international destinations and all have route development funds to further enhance

access. Seamless integration of air with road and rail links was also identified as critically important by all four UK business tourism destinations (McCamley & Gilmore, 2017). This is also the case in with nearby Thailand where major tourist destinations like Chiang Mai, Chiang Rai, Ko Samui, Phuket, Pattaya, Krabi, Bangkok and others are have international airports and are all interlinked with one another. (Thailand Tourism Board, 2020)

In the case of Oudomxay, there is presently only one domestic airport with a single two-way destination between Vientiane and Oudomxay. What this situation presents is that Oudomxay is only currently accessible by air travel from only the Capital City Vientiane and this is seriously limiting the inflow of potential tourist and visitors to the city there by reducing the revenue generated by the tourism sector. Hence it is the recommendation of this research to expand the air accessibility of the city by linking Oudomxay with the closest tourist destination which is Luang phabang. A once a week flight between Oudomxay and Luang Phabang is highly recommended for a start. Then subsequent upgrading Oudomxay airport to an international airport in the not too distance future is highly recommended. What this will do is that it will increase the flexibility of accessing the city by tourist that are indisposed to long distance travel by road. There by increasing the revenue and popularity of the city.

4.1 Conceptual Model for Smart tourism prospects in Oudomxay.

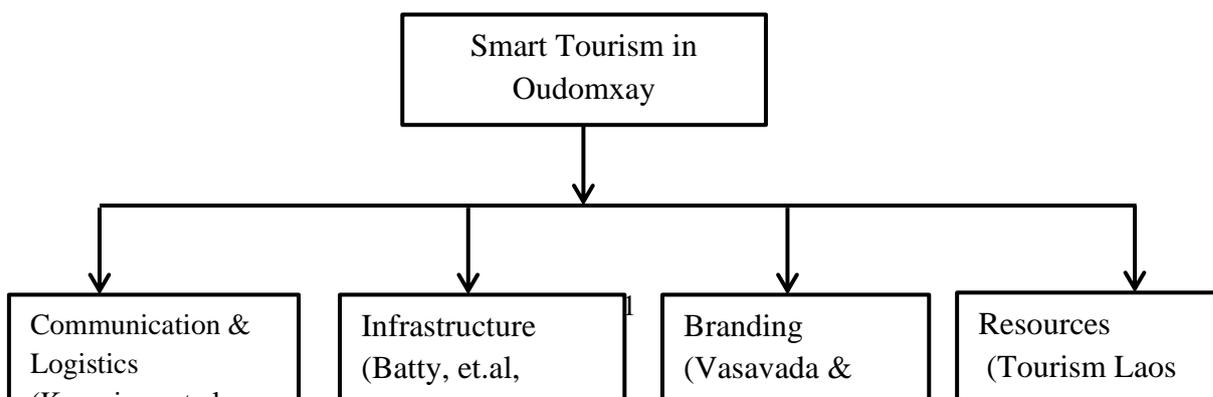


Fig .2 Conceptual Model for Smart tourism prospects in Oudomxay.
4.2 Results of AHP Test

SWOT Group	Group Priority	SWOT Factors	Factor Priority within the Group	Overall Priority of Factor
Strengths	0.367	Geographic Positioning	0.057	0.021
		Local Airport	0.068	0.124
		Diversified Tourism Sector	0.400	0.147
		Large Number of Accommodations	0.144	0.053
		Domestics Market	0.334	0.122
		High Growth Rate	0.055	0.008
		Good Number of Eco and Nature tourist attractions	0.539	0.197
Weaknesses	0.146	Lack of Digitalized Public Transportation.	0.294	0.124
		Lack of adequate Public Transportation.	0.056	0.008
		Lack of flexibility to access destination.	0.204	0.03
		Language barrier.	0.062	0.009
		Government intervention plan to upgrade to Smart City.	0.439	0.185
Opportunities	0.365	Addition of New products and services. e.g. MICE, Center, meetings, incentives, conferences	0.297	0.108
		New Markets with commissioning of Lao-China Railway.	0.164	0.06
		Growing demand for Eco and Nature Tourism.	0.258	0.012
		Threats	0.123	Increase Traffic

		Increased Pollution (Noise/sound, air pollution & Material Waste)	0.101	0.015
		Increased cost of living or inflation.	0.224	0.086
		Damage to natural sites due to influx of Tourists.	0.098	0.014

Fig 3 Final Results of AHP Test

5. Conclusion

In this paper, we have determined critical success for the development of smart Tourism in Oudomxay by combining SWOT with AHP techniques. The findings show the following ranking of each SWOT group priority. The most important factor to be considered with an overall priority value of (0.197) for strength. For Opportunities, Government intervention plan to upgrade to Smart City carries the highest points. (0.185), while for weakness. Lack of Digitalized Public Transportation (0.124) is the highest and for threats, Increased cost of living or inflation. (0.086) Smart tourism has a great potential in a fast-developing country like Laos. It can be estimated that new technological innovations in the tourism industry is configuring a new developmental scenario for tourism destinations all over the world and will naturally favor progression of smart tourism in Laos if adopted quickly and strategically. Unlike developed countries smart tourism in Laos is in the infant stage and need collaborative efforts from the government and the tourism stakeholders for development. The Potential smart cities identified under the Government smart city mission needs to be promoted through smart approaches. Smart city standing committees should come up with needful or necessary strategies and proper planning and monitoring should be followed to achieve those. Since tourism needs long term development, policies should be framed which includes development of overall road infrastructure for better accessibility,

affordable accommodation and restaurants, accessibility to airports, Digitalized tour and public transportation booking services, uninterrupted access to basic amenities like water and electricity and tourism information Centre for tourist guidance. Citizen views are important in decision making process and while implementation community participation should be encouraged. Smart tourism projects need to be marketed through smart mediums like advertising in TV and social medias for wide spread and better responses. Finally, it is not only enough to be declared as a smart City but the significant thing is to maintain and sustain that title.

5.1 Agenda for Future Research

The positive and negative effects of smart tourism on the environment should be the focus of future research. Future research may examine this topic by integrating different theoretical backgrounds, methods, and destination settings. The effects of smart tourism on businesses and their adoption of smart tourism can be the agenda for future research. Another area of research question relates to the authenticity concept. Given the emergence of smart tourism, what destinations and businesses offer to tourists are substantially changing. For example, augmented reality is constantly used within the context of smart tourism as an efficient way to present information and add value to the tourist experience. The authenticity of such and other technology-driven experiences from destinations, businesses, and tourists' perspective remain generally unknown, thereby representing a promising

research direction. Lastly, another well-established and crucial discourse in tourism research is resident attitudes to tourism development. What do residents think about the development of smart tourism at a destination? Arguably, some will welcome it, whereas others will not. However, the question is why. The antecedents and consequences of resident attitudes are thoroughly discussed in tourism literature, and can be extended to smart tourism context.

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