



Smart tourism– Access to responsible tourism development in Phu Quoc destination

Ngo Xuan Hao¹, Nguyen Pham Hung², Pham Xuan Hau³

¹ Graduate Student in Tourism, USSH, VNU, University Van Hien, Vietnam

² Associate Professor, USSH, VNU, Vietnam

³ Associate Professor, University Van Hien, Vietnam

Abstract

This article mentions smart applications and their value in tourism development. The findings show the suitability of smart tourism technologies in destination management and their role in improving tourism activities towards sustainability while ensuring socio-economic and environmental objectives with the participation of stakeholders in the tourism development in Phu Quoc. The solutions presented in this article highlight the great potential of applying smart technologies to compete and implement responsible tourism in the context of Covid-19 pandemic and Phu Quoc is aiming to open the application of Vaccine Passport.

Keywords: smart tourism, responsible tourism

Introduction

1. Setting of research

Covid-19 pandemic has severely affected the tourism industry and the number of tourists dropped sharply. In particular, tourism activities almost had to stop when Covid-19 pandemic broke out for the fourth time in early summer, the peak season of tourism. It has directly impacted and cause a very difficult situation for all tourism and service companies. The appearance of the vaccine passport can be applied to tourists traveling across borders within countries which have come to necessary agreements. Besides, the application of comprehensive system linkages, language unision (thống nhất về ngôn ngữ), data as well as regulations about information security are good signs for the aviation and tourism industry not only in Vietnam but also in the world. These are two areas that are extremely affected by the pandemic. The proposal to apply "vaccine passport" in Phu Quoc is considered to be one of the solutions to reconnect international flights and promote tourism. However, Covid-19 pandemic also poses a new approach to conform to the changes in tourist's behaviors and needs. Accordingly, tourists tend to travel responsibly and pay more attention to the factors such as health safety, hygiene, travel insurance and avoiding crowded contact. Demand for vacations in open and isolated spaces is increasing. Furthermore, they also tend to select near tourist destinations and shorten vacation time. Travel plans are built close to the time of the trip and can be changed more flexibly based on smart travel. Instead of prioritizing price, customers will prioritize safety and choose tourism products which intended concern for the nature, economy, and society on their creation.

2. Research methods

Tourism in Phu Quoc is considered as a part of tourism systems with a larger scale. It is the tourism system of the Southwest tourist area as well as the tourism system of the South Central and Southern tourist regions, so there is a close relationship among them. Therefore, the sufficient

study of the tourism attributes of the system is practically valuable to apply to tourism organization and business. Furthermore, Phu Quoc is an island of Kien Giang province, so it is necessary to research and develop Phu Quoc tourism as an integral part of the tourism development of Kien Giang province. In addition, the article uses data collection and analysis methods. On the basis of an overview of previous documents, articles, journals and scientific works about responsible tourism and tourism activities organization in Phu Quoc, the researchers can understand the past research achievements and current domestic and international issues.

Results and discussion

1. Tendency to apply technologies of The Industrial Revolution 4.0 in smart tourism

The emergence and rapid development of the The Industrial Revolution 4.0 has accelerated the development of technology in the aspects such as mobile phones, digital technology, Internet of Things (IoT), cloud computing, big data, artificial intelligence (AI), etc. It can be said that tourism is an industry that has been considerably affected by "Industry 4.0" and contribute to change the tourists' habits in travel such as searching for information, planning for the trips, travel experience and consumption in the trips. Therefore, it promotes the trend of making smart solutions in the tourism industry.

Some noticeable technology applications in the tourism industry:

- Applying Chatbot to support visitors to look up tourist information 24/7.
- Applying artificial intelligence to provide new services in tourism such as tour suggestions and personalized service.
- Booking travel services such as restaurant, hotel, tour booking, tour guide, etc.
- Applying blockchain in tourism management and development.
- Image recognition, language, and voice analysis, etc.

- Equipment for virtual reality (VR) and augmented reality (AR).
- Automated information kiosks to support tourists.
- Tourism Pass or Mobile Tourism Pass.
- In order to develop Smart Tourism, advanced technological platforms have been developed synchronously, including:
 - Internet of Things (IoT) and Wearable technology.
 - Big data.
 - Equipment for virtual reality (VR) and augmented reality (AR).
 - Data science and artificial intelligence.

2. Smart tourism and smart destination

▪ Smart tourism

From different perspectives, scholars gave different definitions of smart tourism. According to Dr. Ulrike Gretzel, currently working at the University of Southern California, smart tourism is “supported by integrated efforts at a destination to collect and aggregate data derived from infrastructure, social connections, sources from government and business and the human body or mind combined with the use of advanced technologies to transform data into travel experiences in the destinations and propose business values with a clear focus on efficiency, sustainability and enrichment of the experience.

Ning Wang considered that the concept of smart tourism originates from the term "smarter planet". It is a smart tourism management platform and uses the country's tourism resources with the help of cloud computing and network technology, manages the tourism in unision, intelligently and profoundly, improves the decision making of tourism resource management, expands the business areas related to the tourism industry, directs tourism, directs "travel, accommodation, culinary, shopping and entertainment", develops the industry linkages, uses network technology, puts a variety of sensor devices in the tourism resources, properties, sites, etc. Wang also shows the functions of smart tourism through the figure below:

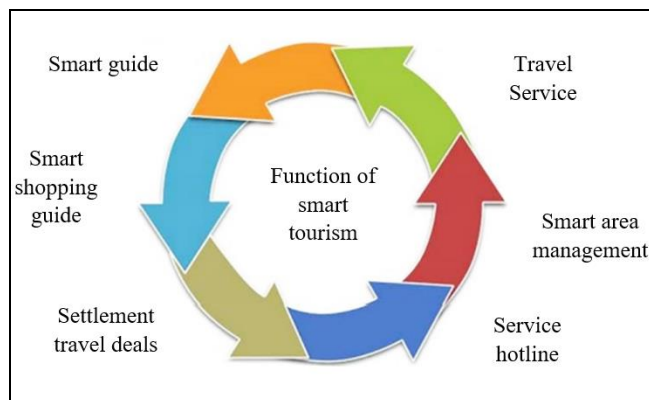


Fig 1

Therefore, we can see that smart tourism can only appear with the help of information and communication technology. The content and scope of smart tourism is very wide, including facilities, tourism infrastructures, social connections to people's thoughts, states, and positions (as a visitor or future visitor) and expresses at many different levels from individual tourists to government agencies in tourism. It is the instant integration of all the aspects related to tourism. All of the stakeholders create and exploit the

huge information resources. Therefore, smart tourism requires four factors: smart technology (Grab, AirBnB, virtual tour guide, etc.); smart tourists (use smartphones and have internet connection); smart tourism enterprises (equipment and smart destinations).

In terms of the tourists

they must be smart tourists. The tourists must have an understanding of tourism experience comprehensively, care about the sustainable development and have responsibility with the tourist destinations. They must be ready to use smart technology to share, innovate, interact with the stakeholders and be ready to create their own travel experiences. For example, an Australian tourist in Ha Long Bay has shared his story on social networks and has effectively interacted with the management agencies. Smart technology without the interaction, connection and innovation of smart tourists does not create smart tourism

In terms of tourism business

Businesses must cooperate and share data. Businesses must also invest to have devices and applications to create, collect, share data and resources instantly. For example, there are applications applying token technology, cloud computing and social network. Hotels must be equipped with wifi and e-CRM (electronic customer relationship management). The use of advanced technologies is limited to Wi-Fi and social media. Without integrating sensor technologies, it can not be considered as smart. Vinasun is a typical example. Data includes internal data to support marketing and increase competitiveness or external data to build business plans, make policies and increase flexibility. Smart businesses can fully integrate data in applications through cloud computing such as historical data and in-place data. For example, businesses equip sensor systems inside hotels and restaurants to collect data about visitors in place or install outdoor sensors to collect information about the weather or receive information from social network. This increases the value chain, improves competitiveness, coordinates effectively and creates flexibility in the tourism business ecosystem.

In terms of the government agencies in tourism.

The agencies must ensure open data for stakeholders, manage data privacy and support public-private partnerships in the tourism business. The agencies also have to equip tourists with wifi connection. Businesses must be equipped with applications that collect and share information. The government agencies must ensure to increase competitiveness and living standards of all stakeholders including residents and tourists. The requirements for business owners in the "Stairway to heaven" case in Da Lat is an example of ensuring healthy competition among businesses. Based on available data, government agencies and businesses make quick decisions and adapt to the changes. For instance, in Europe, thanks to the connection between government agencies and businesses, an event like “Destroy warships at the sea” can become a unique tourism product. Before the government agencies destroys them, they share data on the applications and the event is organized by tourism businesses in the tourism program to sell to the tourists. The ultimate goal of the government agencies for smart tourism is to promote the potential and development of responsible and sustainable tourism.

However, "smart" is not an attribute of tourism. We often classify tourism such as leisure tourism, adventure tourism, medical tourism, etc. Smart tourism is a model of tourism management. Interactive information between parties (visitors, businesses, government agencies, and residential communities) is processed and responded in the fastest and most effective way. Each party of this relationship is a manager. It seems that the attributes of speed (time) and satisfaction (attitude) determined the "smartness" of tourism. It can be said that smart tourism is just a trend. In the next few decades, as technology and communication continue to evolve, standards that are considered to be "smart" today may not be "smart" in the future.

Gretzel, Ham and Koo describe that smart tourism consists of five layers: a) the physical layer includes natural and artificial tourism resources as well as transport infrastructure and services; b) smart technology layer that connects this physical layer and provides auxiliary business solutions and consumption applications; c) the data layer includes data storage, open data and applications for data mining; d) business innovation layer based on available technologies and suitable data sources; and e) the experience layer in which the results of technology and data are used.

Table 1: Transformation from E-Tourism to Smart Tourism by Tomas Gajdosik

	E-Tourism	Smart Tourism
Range	Digitalization	Digitalization and materialism
Core technique	Internet and web-based technologies (websites, social media, OTAs, GDS, CRS, PMS)	Sensory, mobile, Internet of Everything, Cloud Computing
Tourism stages	Needing, searching, post-trip experience	All stages (focus on the while-tour stage)
Key factor	Information	Big data
Main activity	Searching, booking	Create and decide together, personalize tourism products

As can be seen, e-travel is placed in a (relatively) static state while smart tourism takes place in a dynamic state.

According to Tomas Gajdosik, a smart tourism ecosystem is the most comprehensive understanding, describing the most basic concept of smart tourism. Indeed, no stakeholders in a tourism relationship operate in isolation. Ecosystems are made up of separate species (tourists, tourism businesses, government agencies, social communities) that must interact and resonate with each other to survive and develop (to achieve specific objectives) in a particular environment (operating and network of businesses). Therefore, policymakers must pay attention to building synchronization for the "species" in the system to ensure balance and development. Otherwise, it will not be possible to optimize the benefits of the system.

However, we should not be so focused on smart tourism that we forget about traditional tourism. There will be no smart tourism if we don't have tourism resources, destinations, transport infrastructure... Therefore, in parallel with technology and communication investment to integrate, process information, we still need to ensure that we build good infrastructure and service quality that meets the minimum requirements, while it is not possible to be compatible with technology equipment. Besides, smart tourism also leaves concerns on data abuse, lack of information, and the risk of financial loss from tourists.

Smart tourism is not the end goal, but with the help of technology, innovation, and cooperation, it will bring better travel experience, stay, improve efficiency and competitiveness of businesses, tourist destinations, and sustainability in the overall competition. But smart tourism

In short, we can understand that *Smart tourism is a management model built on the foundation of synchronous information technology and communication infrastructure, in which data is created, integrated, processed, shared and ensured instant and effective interaction between the parties such as tourists, residential communities, tourism businesses and government agencies to increase the value of experience and competitiveness.*

Smart tourism is considered a direct extension of e-travel. E-Tourism offers analysis, design, implementation, and application of information technology/e-commerce solutions in travel and tourism, as well as analysis of technical and economic processes and the corresponding market structure. It includes the digitization of all processes and value chains in the travel, tourism, hospitality, and food service industries. At the tactic level, it includes e-commerce and the application of Information Technology to maximize the efficiency and effectiveness of the tourism organization. At the strategic level, e-tourism revolutionizes all business processes, the entire value chain, as well as the strategic relationships between tourism organizations and all stakeholders.

meets visitor expectations better by providing personalized products and new challenges for tourism businesses and destination management agencies to collect data and create more competitive products. All tourism stakeholders should engage in knowledge exchange, cooperation, and value creation to shape a smart tourism environment. The combination of information technologies and informed stakeholders are driven by innovation-driven tourism authorities can enhance a tourism destination's potential, competitive advantage.

Smart destination

The terms smart destination and smart city have grown in popularity over the past half-decade. Google Scholar gives 21,000 results when typing the keyword "smart city" since 2019.

According to Giffinger *et al.*, the idea of a smart travel destination originates from the concept of a smart city, where intelligence is combined in mobility, living, people, governance, economy, and environment... Currently, the concept of smart destinations has been changing many major cities around the world. Buhalis & Amaranggana defines a tourist destination as an area chosen by tourists that includes all necessary amenities such as accommodation, restaurants, and entertainment. Buhalis also argues that successful destinations are structured around the following six elements:

1. Attractions: natural (like waterfalls), man-made (like theme parks) / cultural (festivals, events).
2. Accessibility: the transport system includes roads, stations, and public transport.

3. Facilities: services to facilitate accommodation, meals, and entertainment/activities.
4. Tourist packages available: intermediaries to attract tourists directly, information centers.
5. Activity: promote tourists to a particular place.
6. Ancillary services: are auxiliary services for tourists' needs (banking, postal, medical, etc.)

According to Carlos Lamsfus *et al.*, a tourist destination is considered smart when it fully utilizes the technological infrastructure provided by a smart city to: (1) enhance the tourist experience of visitors by personalizing and making them aware of both local tourism services and products available to them at the destination, and (2) by empowering destination management organizations, local organizations and tourist companies, so they can make decisions and take actions based on data generated in the destination, collected, managed and processed using the technological infrastructure.

It is very important to implement smart concepts in a tourist destination as tourists are connected, better informed, and interact with each other dynamically with the destination leading to the need for tourism co-production, adding value to all tourism stakeholders (Neuhofer *et al.*). The smart destination analysis according to Tran, Huertas, & Moreno includes 6 elements: smart attractions; smart accessibility; smart amenities; intelligent auxiliary; smart operation, and smart packages are available. Thus, a smart tourist destination must basically be fully equipped with the necessary elements of a successful tourist destination before embedding in a "smart" technology environment such as IoT, mobile communication, cloud computing, and artificial intelligence technology.

3. Travel responsibly

Nowadays, the responsible tourism development approach is becoming a global trend. Many countries around the world have successfully implemented this approach. The concept of "Responsible Tourism" was first introduced by the World Tourism Organization in 2002 in the Cape Town Declaration. Accordingly, Responsible Tourism is defined as a development principle, according to which:

- Minimize negative economic, environmental, and social impacts;
- Create greater economic benefits for the local population and improve the living standards of the local community accepting guests;
- Improve working conditions and access to the tourism industry;
- Involve local people in decisions that affect their lives and change their ways of life;
- Actively contribute to the conservation of cultural and natural heritage, maintaining diversity;
- Provide enjoyable vacations to tourists through meaningful connections with local populations, a better understanding of local culture, environmental and social issues;
- Create access for people with health difficulties;
- Promote mutual respect between tourists and locals.

Responsible tourism requires individuals, organizations and businesses to take responsibility for their actions. This approach emphasizes the responsibility in Tourism of all stakeholders.

4. Responsible tourism approach for tourism in Phu Quoc

Smart tourism is a component in the Smart City, using information and communication technology to form a tourism ecosystem and create mutual benefits between the three groups of tourists, authorities and businesses; building a tourism industry that brings new values and new experiences to visitors, improves the quality of tourism services, and contributes to sustainable economic development. Building smart tourism aims to solve the existing problems of the current tourism industry, heads towards the following main development goals:

▪ For tourists

Visitors can experience smart travel, be provided with full travel service information and make quick transactions; At the same time, interacting in real time to get the best travel schedule. Additionally, interacting with the authorities to reflect on the quality and security of tourism.

▪ For businesses and local communities

Identify each tourism service business and household as a link to promote and provide smart and convenient utility services for tourists based on the cooperation of the parties (government, businesses, etc.). social organizations, people,...) in an open and dynamic orientation.

▪ For management departments of government (apply technology - Vaccine passport)

Building a smart destination enhances management and attracts visitors through the provision of up-to-date experience services (virtual reality, 3D modeling, 360-degree photos, automatic guides, etc.) on the infrastructure of connection, information sharing, smart mobility, smart interaction.

Implement data digitization of the tourism industry and strengthen cooperation and data connection with related industries to collect data (Wi-Fi system, flight data, data of travel agencies, travel agencies, accommodations, payment, security, order,...) to analyze and forecast tourism needs, trends and preferences for better forecasting and planning for tourism development.

Conclusion

To develop Phu Quoc to become a smart tourist destination, the city must meet the requirements of a smart tourism system, comply with modern technology architecture and standards for high compatibility between solutions and equipment from many vendors, including: infrastructure for integrating tourism data; The ecosystem of services and applications in tourism that can develop in the future such as: travel portal, mobile travel applications, tourist digital map, social network and chatbot; accommodation management system, smart payment card, Big Data, virtual reality; infrastructure to access to tourist information such as: Public Wi-Fi System, booths to find tourist information. Smart Tourism is understood as a tourism model where smart technology and communication are used throughout the trip to meet the stakeholders' goals related to responsible and sustainable development. In particular, visitors will have better and more convenient travel experiences based on technology; Tourism businesses and local communities understand the market's trends and needs, create new opportunities and increase competitiveness; The government

agencies in tourism will manage tourism activities and tourism resources more effectively. Therefore, they can achieve local socio-economic goals.

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