

# SMART TOURISM: OPPORTUNITY FOR UNIVERSITIES IN VIETNAM

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**ABSTRACT:** Vietnam is one of the fastest-growing tourist destinations in the world. Although the Vietnamese government has supported the development of tourism, there is a major shortage of skills and resources that constrains the growth. In this paper, we argue that Vietnamese universities and other higher education institutes are well positioned to solve the limitations of tourism. The concept of Smart Tourism, in particular, provides a vast opportunity for these universities and institutions to (1) develop relevant curricula, capacity and competencies for digital teaching methods, (2) to enlist the international help and cooperation in improving the capacity and quality of teaching; and (3) to connect the cooperation between lecturers, researchers and companies in the Smart Tourism related area. This article not only contributes ideas in relation to developing tourism education and training at universities in Vietnam in general, in Haiphong city in particular, but also proposes some solutions in the matter.

**Keywords:** *Smart Tourism, Vietnam, higher education, universities, entrepreneurship*

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## DU LỊCH THÔNG MINH: CƠ HỘI CHO CÁC TRƯỜNG ĐẠI HỌC VIỆT NAM

**TÓM TẮT:** Việt Nam là một trong những điểm du lịch phát triển nhanh nhất thế giới. Mặc dù chính phủ Việt Nam đã có những hỗ trợ tích cực cho sự phát triển của ngành du lịch nhưng đến nay vẫn còn có những thiếu hụt lớn về kỹ năng và nguồn lực ảnh hưởng không nhỏ đến sự phát triển này. Trong bài viết chúng tôi lập luận rằng các trường đại học Việt Nam và các cơ sở giáo dục khác có thể giải quyết những thiếu hụt đó của ngành du lịch. Khái niệm về du lịch thông minh cung cấp cho các cơ sở đào tạo một cơ hội lớn để (1) phát triển các chương trình đào tạo cũng như phương pháp giảng dạy kỹ thuật số; để (2) tranh thủ sự giúp đỡ và hợp tác quốc tế trong việc cải thiện năng lực và chất lượng giảng dạy; và để (3) kết nối sự hợp tác giữa những giảng viên, nhà

ngiên cứu với các công ty liên quan đến vấn đề du lịch thông minh. Bài viết không những đóng góp ý tưởng về phát triển đào tạo ngành du lịch ở các trường Đại học ở Việt Nam nói chung và ở Hải Phòng nói riêng mà còn đề xuất một vài giải pháp liên quan đến vấn đề du lịch thông minh.

*Từ khóa: Du lịch thông minh, Việt Nam, giáo dục đại học, doanh nghiệp*

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## 1. INTRODUCTION

The tourism industry contributes significantly to the world economy. It is estimated that 10 % of the world GDP pertains to the tourism sector, which also employs 10 % of global workforce (Romão, 2018). The growth of international tourism is much faster than the global economic growth, and the strongest growth (around 4–5 %) in the next decade is believed to come from Asia and the Americas (Mandal & Vong, 2016). With the annual growth rate of 26 % in 2016 (Romão, 2018), Vietnam ranks among the fastest-growing tourist destinations in the world. Since 2010, the number of international tourists has grown three-fold from 5 million to more than 15 million in 2018 (Vietnam Briefing, 2019).

Tourism is a top priority for Vietnam. The industry is seen to bear potential to provide more jobs, to increase income, and to bring peace, mutual understanding and unity to the country (Tran Thi Ai Cam, 2011). The tourism industry currently accounts for almost 7 % of Vietnam's gross domestic product. It is heavily supported by the Vietnamese government that aims to generate US\$ 45 billion in revenue from tourism, to increase the sector's contribution to more than 10 % of the GDP by 2025, and to provide over six million direct and indirect jobs (Vietnam Briefing, 2019). However, the expansion of the tourism industry in Vietnam is constrained by slow investments in infrastructure, such as airports, shortage of

qualified labour, and a lack of tourism products and general brand awareness (ibid).

The tourism industry has considerably changed in the last few years, as new trends pertaining to the urbanization, the general increase in living standards, the development of technology, and the increase in people's awareness of the importance of traveling to understand the world (Pavlović, 2018). One of the recent trends in the industry is Smart Tourism, which refers to the innovative application of digital technologies such as mobile communication, cloud computing, Internet of Things (IoT), artificial intelligence, and virtual reality to improve tourism business models and service offerings. While the tourism industry has long embraced digital (self-)services, disintermediating traditional travel agents and enabling total end-to-end consumer-facing online solutions, the affordances of modern digital technologies, however, have not yet been brought into full service, particularly in emerging countries such as Vietnam.

The government of Vietnam has increased funding for education, expanding the number of vocational education and training providers and universities in the field of tourism (University World News, 2019a). As per Vietnam Higher Education Reform Agenda 2020, higher education institutions have increased autonomy in deciding and carrying out training, research, human resource management and budget planning (Herman, Hayden & Pham, 2010). On the

other hand, Vietnam's Strategy for Education Development 2011 - 2020 encourages international cooperation in teaching, learning and scientific research. Specifically, the action plan number 07-CTr/ĐU signed on November 18, 2016, by the rector of Haiphong University, Pham Van Cuong, states that foreign lecturers and students are encouraged to come to Haiphong University.

In this paper, we argue that Smart Tourism represents a vast opportunity for Vietnamese higher education institutes. The paper is structured as follows: In Section 2, we discuss the state of Smart Tourism in Vietnam, particularly in Haiphong. In Section 3, we review the current state of higher education in Vietnam, in general, and the state of tourism education in Haiphong, in particular. In Section 4, we then discuss the potential that the Smart Tourism approach provides for the higher education institutes in Vietnam along three dimensions: 1) development of curricula, capacity and competencies in the national focal area of (Smart) Tourism; 2) international cooperation in education and research; and 3) fostering industry-academia collaboration and entrepreneurship in the area. Section 5 represents our key contribution: a suggestion for an applied, industry-relevant and international-collaboration-based approach to Smart Tourism education. Finally, we conclude the article with discussion and conclusions.

## **2. STATE OF SMART TOURISM IN VIETNAM**

As mentioned above, the Vietnamese tourism industry is sizable and growing fast. The Ministry of Politics has given Decree No. 08-NQ/TW that tourism development shall become a key industry, which strategically directs the country development (Thanh Giang, 2019). In line with the global trend toward Smart Tourism (Hong Nhung & Nghi Do, 2019), the Vietnamese tourism laws, which is promulgated in 2017, stipulate

that the State grants policies to encourage and support modern scientific and technological application activities in service of tourism management and development (No 4, Item 5).

Smart Tourism is described by Nguyen Van Tuan, General Director of the Vietnam National Administration of Tourism (VNAT) as a kind of tourism that applies information technology to tourism activities, helping customers search for information and plan their trips proactively (Voice of Vietnam, 2019). This releases more of the tourists' time for shopping and sightseeing, as their traveling problems can be solved online (ibid). Although Smart Tourism is a new concept in Vietnam, some big cities, such as Hanoi and Ho Chi Minh City have been pioneering it, yet the applications are still basic in their functions (Hong Nhung & Nghi Do, 2019; Viet Nam News, 2019). According to Pham Duc Long, general director of Vietnam Posts and Telecommunications Group (VNPT), many localities that signed co-operation agreements with VNPT in smart city development have at least paid attention to tourism development (Nguyen Mai, 2017).

In Hanoi, intelligent software has been designed and put into use in 2018 to support travellers in the city. The applications include an automatic voiceover system at the Temple of Literature – Quoc Tu Giam – and a sightseeing guide at Thang Long Royal citadel. A number of digital maps, bus stations, other travel guides have also been researched, manufactured and put into use for a long time. Tourists can also access free Wi-Fi stations in many locations, such as the area around Hoan Kiem Lake, the old town, flower streets, flower markets, parks, bus stations, bus routes, etc. (Thanh Giang, 2019).

Ho Chi Minh City actively promotes the application of information and

communication technology in the tourism industry. To turn into a smart tourism city, Ho Chi Minh City has deployed some smart tourist information stations, smart travel software called “Vibrant Ho Chi Minh City”, and other utility software such as “Sai Gon Bus”, “Ho Chi Minh City Travel Guide”, and “Ho Chi Minh City Guide and Map” (Thanh Giang, 2019).

Da Nang is also a leading locality in the development of Smart Tourism. In combination with electronic marketing methods to promote tourism, Da Nang has built software applications such as “Da Nang Tourism”, “inDaNang”, “Go! Danang”, “Da Nang Bus” to support tourists. In particular, Da Nang has launched the chatbot application “Da Nang Fantasticity”. This is the first use of the technology in Vietnam and Southeast Asia (together with Singapore) (Thanh Giang, 2019).

Not only big cities but also some other tourist destinations, e.g. Sapa, Ninh Binh, Phu Quoc, and Vung Tau, are deploying smart travel applications. These application help tourists quickly find ATMs, gas stations, and healthcare and other services (Hong Nhung & Nghi Do, 2019).

The transformation from traditional tourism to Smart Tourism is allegedly very quick, and it is touted that “industrial revolution 4.0” will need to be actively pursued to keep up with new business trends and to meet the diverse needs of tourists (Thanh Giang, 2019; Vu Huy Thuong, 2019). However, according to Mr. Vu Quoc Tri, Chief of Tourism Administration Office, despite more than 50 % of tourism businesses have applied online sales and payment solutions, their business effectiveness and revenue generation through the network do

not match up. About ten e-commerce travel websites were born, but only accounted for about 20 % of service transactions, while the rest were conducted by foreign e-commerce exchanges. Another issue is the fact that most of Vietnam's famous monuments, despite having a website for promotion, often contain information in Vietnamese only. This is a big limitation on attracting international visitors (Thanh Giang, 2019).

### **Smart Tourism in Haiphong**

The tourist companies in Haiphong seem to have caught up with other big cities in applying technology in their business. Data has been digitized, e.g. updating tour information, routes, promotion programs, operations of enterprises on websites. The companies are beginning to use new technology in enhancing customer experience, upgrading tour operating software; deploying an electronic payment gateway; or setting up channels to interact directly with customers.

Only a few large tourist companies seem to be active in the use of the Internet in promoting their business. The small- and medium-size enterprises are likely to lack strategy to effectively apply information technology in managing and promoting their business. In the vast majority of tourist companies, the use of IT is at a very basic level. The advantages of technology are not yet harnessed to attract customers or to manage or administer the business. Hence, all players in the tourism industry, from government agencies to tourist companies, are racing to transfer their business into digital as soon as possible. The end game seems to be to form an integrated system and smart travel data exchange that would integrate hitherto disparate travel data blocks. Such an intelligent data system and solution would create added-value to tourism products and

services thanks to the ability to personalize the needs of customers (Vu Huy Thuong, 2019).

Recognizing such a trend and needs in tourism, the vice-director of the City Department of Tourism, Tran Van Ngoc states in an interview made by the authors in September 2019 that Smart Tourism is one of the concerns of the city department and that he is closely observing the developments and looking for opportunities in the area. Moreover, the tourism industry in Haiphong will apply information technology deeper in terms of building a digital transformation strategy, developing smart tourism, developing e-government, innovating service environment, supporting creative start-ups (Vu Huy Thuong, 2019).

### **3. STATE OF HIGHER EDUCATION IN VIETNAM**

While Vietnam performs relatively well in primary and secondary schooling, tertiary level education is not as strong (Tran & Marginson, 2018). Even more than 30 years since *Đổi Mới* (Economic Reform), the Vietnamese higher education continues to look for effective ways to make the curricula more responsive to the society's changing needs and more relevant in the face of global knowledge economy (ibid). As of 2019, only two Vietnamese universities are ranked in the world's top 1,000 universities according to Time Higher Education (Vietnam Express, 2019; Master Portal, 2019).

The Vietnamese education system emphasizes textbook-centric rote memorization, frequent assessments and high-stake examinations. While the government is acutely aware of the need for profound changes to the education system, real changes in the teaching-learning approach do not come easily. "It is a big ask of university students who are used to years of being required to memorise facts – often from a single textbook – and then

regurgitate those same facts in a formal high-stake exam, to suddenly engage in problem-solving, critical analysis and creative initiative. It is just as big an ask of academics, who themselves are products of this approach, to design a curriculum and include activities that provide opportunities for young learners to work in teams to provide creative solutions to real-world problems." (University World News, 2019a).

The government of Vietnam encourages and supports higher education institutes to cooperate with foreign organizations and individuals in teaching, learning and scientific research. New laws and decisions support collaboration with foreign organizations in teaching, investment, funding, co-operation, scientific applications and technology transfer (Pham Van Cuong, 2016).

The Vietnamese government has increased funding for education to meet the demands of the employment market, but there is still way to go before the education system matches the country's demands (University World News, 2019a). To bridge the gap between higher education training and the skills required in the employment market, close cooperation and connection between the higher education system and industry is needed (Tran Thi Tuyet, 2016).

To reach its ambitious target of achieving the status of an industrialized country by 2020, the Vietnamese government has put emphasis on investment in science, technology, and technology transfer. Greater cooperation between industry, universities and other research organizations is a key element in its science and technology policy (Fatseas, 2010). The legislative framework in Vietnam reflects this sentiment. The 2001 Law on Science and Technology explicitly stipulates that organizations and individuals engaged in scientific and technological

activities should take responsibility for technology transfer. Furthermore, the law features tax and credit incentives as well as a fund for low- or no-interest loans to enable technology transfer (ibid).

### **Tourism Education at the Universities in Haiphong**

Haiphong has four universities but only Haiphong University and Haiphong Private University (University of Technology and Management, Haiphong) are offering a program in relation to tourism management. However, neither of these programs currently focuses on Smart Tourism. According to the action plan number 07-CTr/ĐU signed on 18 November 2016 by the Rector of Haiphong University, Pham Van Cuong, Haiphong University should consider opening a new teaching area, perhaps a Master Degree Program in Smart Tourism Management to cater for the needs of Haiphong City.

At the moment of this writing, the area of Smart Tourism is likely to represent a new training opportunity for universities in Haiphong in general, and in Haiphong University in particular.

### **4. SMART TOURISM: OPPORTUNITY FOR VIETNAMESE UNIVERSITIES**

Due to the rapid growth of the tourism sector, the Tourism schools in Vietnam only cater for 60 percent of the demand for qualified workers (Vietnam Briefing, 2019). New training courses and qualification standards are needed that would be in a better line with international industry practice (ibid). Given the discussion above, we view that tourism, in general, and Smart Tourism, in particular provides vast opportunities for the future development of universities and other higher education institutes in Vietnam, particularly in Haiphong.

Smart Tourism is a manifestation of the “4.0” era, which calls for 1) the ability to

apply scientific and technological advances into practice; 2) proficiency in soft skills such as communication skills, teamwork, presentation skills, time management, etc.; 3) command of one or more foreign languages; and 4) practical working skills obtained through internships and part-time work experience (Tim Viec Nhanh, 2018). These characteristics represent an opportunity for Vietnamese universities that are able to take on the challenge.

In the context of Smart Tourism, the use of information technology and the development of digital solutions are integrally embedded in the way how tourism services are rendered. The interdisciplinary and integrated nature of Smart Tourism is generally not adequately reflected in current tourism education curricula, and the social use and affordances of technology as well as the interrelations and complexities that arise from the ubiquity of IT should be more critically explored (Munar and Bødker, 2015). The universities should reflect this “tourism informationization” (Yao & Lu as cited in Li et al., 2017) in their curricula and systematically integrate tourism resources and tourism information with the tourist’s interactive experience in the centre (cf. Li et al., 2017).

Due to the socio-cultural changes pertaining to the technological advances, redesigning learning processes in tourism is also of a high importance and need (Sigala, 2015). Sigala (2015) advocates that ‘new’ learning theories, such as connectivism and conversational learning, are conducive to developing and excelling pertinent soft skills, such as self-regulation, meta-cognitive skills, online communication and social skills, social cognitive skills, information literacy skills, as well as creativity and memory skills. The universities should adopt collaborative type of learning processes

informed by these theories to ascertain requisite proficiency in the afore-mentioned soft skills.

In the face of inherent internationalization of education, proficiency in foreign languages, especially English, is of increasing importance. International collaboration bears potential to revise outdated higher education curricula, to keep pace with international developments, to lift the global ranking of universities, and to build the capacity of teachers (University World News, 2019b). Smart Tourism is a particularly amenable area for internationalization. Foreign expertise in entrepreneurship as well as skills and know-how in digital data, technologies, and infrastructures could be transferred to Vietnam to enrich existing higher education teaching curricula and then applied in the local context, ideally in engagement with industry. Moreover, international colleagues can expose teachers to new and pedagogically more effective teaching approaches. Through stronger competences in terms of both method and content, the teachers will be better equipped to provide education in Smart Tourism, to make the learning process more captivating and meaningful for students, and to also train other teachers in the area. The Vietnamese universities should therefore seek international collaboration with overseas universities and other education providers to augment their own skills and to build their own capacity, e.g. through “train the teacher” programs given by the international partners.

The tourism professionals, by the very nature of the industry, require months of on-the-job training that cannot be trained in a classroom setting or based on textbooks (Vietnam Briefing, 2019). In a comparable vein, Smart Tourism is very much applied in real-life contexts. A successful Smart Tourism professional must be able to translate abstract ideas (such as Software-as-a-Service) to concrete applications and services (such as an online reservation system). Whether she has

learnt the trade or not can hardly be tested with any classroom examination. A more effective way to verify the acquisition of requisite skills would be to engage in the implementation of digital Smart Tourism services. The universities that focus on Smart Tourism will be very attractive to companies in the tourism industry that call for new digital solutions. They should take on a leading and proactive role in reaching out to the industry, to progressively build industry–academia relationship, and to validate the effect of Smart Tourism through application in real-life industry context. Active engagement with the industry would provide in-practice learning opportunities for their students, while bringing value to the companies in terms of knowledge transfer, access to qualified workforce, and, in the best case, even tangible outcomes in terms of digital service solutions.

In sum, Smart Tourism, calls for an altogether new curriculum, both in terms of the content and the teaching methods. However, skills in digital service design and development, required to understand the affordances of digital data and technology and how to translate innovative ideas to technical implementations, as well as pedagogic competencies, required to actively apply the learned material in industry contexts, are in short supply in Vietnam. Universities that embark on Smart Tourism programs early on are bound to appear more appealing to aspiring students, ambitious teachers, and prospective industry partners alike.

#### **5. PROPOSED SOLUTION:**

#### **UNIVERSITY-DRIVEN TRANSNATIONAL ENTREPRENEURIAL ECOSYSTEM ON SMART TOURISM**

To seize all of the afore-mentioned opportunities in the area of Smart Tourism, Vietnamese higher education institutes should engage and collaborate with competent

international academic partners to revise their tourism training curricula, both in terms of the content and the teaching methods, and to incubate entrepreneurship in the area. In the following, we outline a possible program that would not only enhance the Smart Tourism curriculum and build the capacity of teachers in the area, but would also benefit the tourism industry in developing and rolling out Smart Tourism solutions in practice.

An entrepreneurial ecosystem refers to a network of public and private institutions that supports the creation and growth of new ventures. Such ecosystems tend to be Silicon Valley type of regional clusters in specific industries. Research on knowledge diffusion in different network structures, however, indicates that such clustering may go too far and that it is very important to also build and maintain links outside the cluster (Cowan & Jonard, 2004).

This invites the idea of transnational entrepreneurial ecosystems that would conjoin entrepreneurial ecosystems across regions and between a developed and an emerging market. In the case of Smart Tourism, such an inter-cluster network structure could bring together skills and knowledge pertaining to digital service design and development, tourists, and travel agencies from a country like Finland, on one hand, and local entrepreneurs (e.g. fishers, farmers) and service providers (e.g. tour operators, hospitality services) from Vietnam, on the other. Collaboration between higher education institutes across such countries would constitute a natural bridge across hitherto separate regional entrepreneurial ecosystems.

Technology start-ups and digital service companies are particularly amenable to cross-border innovation of new business, because 1) the ubiquitous cloud computing resources and Internet applications drastically lower the threshold of starting up a business

and make it scalable from the get-go; 2) digital platforms render services very scalable and cost-efficient through decoupling their provision and consumption in time and space; 3) liquification of data and dematerialization of resources enable unbundling of physically and geographically bound activities and re-bundling them in the virtual space on the global scale, and 4) digital data and technologies provide virtually limitless opportunities for data- and technology-driven service innovation.

On the other hand, tourism, by its very nature, provides a particularly conducive context for a transnational entrepreneurial ecosystem. As it would involve stakeholders both from the source and destination locations (e.g. travellers, travel agents; hospitality services, tour operators), such an ecosystem would be likely to catalyse end-to-end digital service innovation, while providing resource-based competitive advantage to its constituents.

A transnational entrepreneurial ecosystem in Smart Tourism would bring together local and international start-ups and incumbents, investors, higher education institutions, and municipal and governmental actors from two or more countries. Such an ecosystem cannot be built overnight, but will take several years to nurture. In the first instance, Industry-academia relationship and collaboration in the area of Smart Tourism could be fostered through co-creation of new digital services that would include teachers and students, business stakeholders, as well as tourists. The co-creation could take place in longer-lasting Living Labs or shorter but intensive Innovation Bootcamps or Hackathons.

## 6. CONCLUSIONS

The Vietnamese government heavily supports the fast growth of the tourism sector. This growth, however, is limited by a shortage of skills and resources.

Contemporary tourists, particularly those of a younger generation (cf. Pavlović, 2018) and from developed countries, increasingly expect digital services to mediate, enrich, and augment their travel experience. For instance, if an accommodation service provider is not partaking in digital platforms such as Booking.com, it practically does not exist to such a tourist. Smart Tourism refers to the application of digital technologies in tourism business models and service offerings.

While the field of tourism is well represented in Vietnamese vocational education and training providers and universities, Smart Tourism concepts and ideas are yet to make inroads into curricula. This represents a major opportunity for Vietnamese higher education institutes in terms of 1) development of curricula, capacity and competencies in smart tourism; 2) international cooperation in education and research; and 3) industry–academia collaboration and incubation of Smart Tourism entrepreneurship.

The conceptual nature of this paper invites further corroboration through empirical research, wherein the appropriate curriculum redesign, application of online teaching and new teaching methods, as well as incubation of academia–industry collaboration will be conducted in practice. In this paper, we have suggested how Vietnamese universities in general, and Haiphong University in particular, could take a leading, proactive role in fostering Smart Tourism. Engaging and collaborating with international higher education institutes could help the universities to revise their tourism training curricula. The new curriculum would embrace Smart Tourism and apply problem-based and practice-oriented teaching methods. The collaborating universities would then establish and drive a transnational entrepreneurial ecosystem, within which international Smart Tourism start-ups and entrepreneurial innovations can be effectively incubated.

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