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The Introduction of ICT for Sustainable Development of the Tourism Industry in Cambodia

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The Introduction of ICT for Sustainable Development of the Tourism Industry in Cambodia

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Abstract: Tourism industry/development constitutes one of only a few viable development options and is often the principal source of foreign exchange earnings without exporting any national wealth or resources. It plays an important role in the sustainable development of many developing countries. The current national strategic development goal of Cambodia has embraced the tourism sector is one of the major driving economics sources after garment industry and agricultural products. In the 2011 report of World Economic Forum (WEF), Travel and Tourism Competitiveness Index (TTCI) which developed to measure the factors and policies that make it attractive to develop the Tourism sectors in different countries ranked Cambodia 109 (Cambodia's overall score index is 3.44) out of 119 countries. TTCI was computed by using three principal sub indices while ICT (Information Communications Technology) infrastructure was one of the individual variable for computing the Travel and Tourism business environment and Infrastructure sub index. Seeing Cambodia sits in the low position in TTCI and the awareness of the command of the pivotal ICT role in all functions, the study attempts to look into in particular development of uses and applications of ICT in Tourism sector in Cambodia. Furthermore, the study uses the article on the Adoption of ICT on Chinese's tourism industry for a benchmarking case study. As this paper is the initiative study on E-Tourism in Cambodia, the attempt is to bring the interest of the government and the tourism entrepreneurs to visualize the importance and competitiveness by utilizing ICT in the tourism application.

Keywords: Tourism Industry, Developing Countries, ICT Applications/Services, TTCI, WEF.

JEL classification numbers: L98, M15, M38, G28.

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1. Introduction

The World Tourism Organization (WTO) defines tourists as people "traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes".

Tourism has become one of the world's largest and fastest growing industries. According to the Regional Study on the Role of Tourism in Socio-Economic Development by the United Nations Economic and Social Council, Over the period 1995-2005, international tourist arrivals grew at an average annual rate of 4.10%, exceeding the 800 millions which this outstanding performance can be attributed to several factors including the following: rising levels of disposable income, improvements in transportation and the introduction of low-cost airline service; easier access to destinations by tourists from traditional source markets and the emergence of new source markets such as China and India (shown on top ranking amongst Asian countries in Travel and Tourism Competitiveness Index (TTCI)) and the diversification of the industry with new market niches (cultural tourism, ecotourism and adventure tourism).

Tourism is known to be a prominent industry and an important wealth creator for both global and local levels. In many developed countries, tourism industry is seen to be a full-grown in terms of the existence and well-establishment of tourism infrastructures. World Economic Forum (WEF) carried out an in-depth analysis of the Travel and Tourism competitiveness of economies around the world. The initiation was which by meant to provide a platform for multi-stakeholder dialogue to ensure the development of strong and sustainable national Travel and Tourism (T&T) industries capable of contributing effectively to international economic development.

Three significant sub indices which shown in Table 1 below are used to quantify the level of T&T Development in each country.

Table 1: Travel and Tourism Competitiveness Index Components (Sub-Indices)

<i>T&T Regulation</i>	<i>T&T Business Environment and Infrastructures</i>	<i>T&T Human Capital and Natural Resources</i>
1- Policy rules and regulations 2- Environmental Sustainability 3- Safety and Security 4- Health and Hygiene 5- Prioritization of T&T	1- Air Transport Infrastructure 2- Ground Transportation 3- Tourism Infrastructure 4- ICT Infrastructure	1- Human Resource 2- Affinity for T&T 3- Natural Resource 4- Cultural Resource

T&T Competitiveness Index (TTCI) 2011 ranked most of the European countries such as Switzerland and Germany were at 1st and 2nd respectively, USA (6th) and Singapore (10th) are top ten countries, followed by all developed countries. Developing countries in Asia, Africa, and the Pacific were ranked in the lowest positions. The justifications of the low ranking level of developing countries are obviously based on the combination of lower/lowest scores of three dimensions (three sub-indices). Turning the interpretation particularly on the ASEAN group except Singapore which ranked amongst the top ten, TTCI explicitly conveys some countries like Malaysia,

Thailand, Indonesia and Vietnam are doing far better than the Philippines(94th) and Cambodia (109th). Cambodia and the Philippines are even ranking backward if TTCI 2009 to be considered.

Seeing the significant contribution of tourism sector on the national economic growth with the author's desire to rectify the adverse position in TTCI of Cambodia, this study focuses on the improvement and sustainability of Tourism industry in Cambodia with the enhancement of ICT applications and services. The analysis of the study will be inclined to serve/assist the practitioners, policy makers, investors and especially the government of Cambodia for taking a proper further strategy for tourism sector development, rather than for a pure academia.

2. Benefits of Tourism Sector

2.1. Little Discussions on Tourism Industry

The development of Tourism industry has been the center subject of debates for many years resulted in drawing the abundant guidelines and policies as references for all tourism agencies. Modern literatures have now put the focus on the sustainability of tourism business by accommodating the electronic transaction in trading tourism activities which commonly known as e-tourism. The World Tourism Organization addressed the Internet is revolutionizing the distribution of tourism information and sales. An increasing proportion of Internet users are buying on-line and tourism will gain a larger and larger share of the online commerce market. Obviously, the Internet is having a major impact as a source of information for tourism.

It is arguably that traditional tourism trade has been regarded to be an obsolete and ineffective method to conduct a modern business of tourism because² unlike durable goods, intangible tourism service cannot be physically displayed or inspected at the point of sale before purchasing. Therefore, the customers depend exclusively upon the representations and descriptions which provide by the tourism trade (travel agency, national tourism agency, airline industries and other travel trade related industry). Tourism product/package is the combination of various stakeholders' type of business such as transportation, airline, restaurant, hotel, etc. Several studies revealed the leakage of tourism industry when the traditional marketing of tourism product is still in practice.

Traditional transactions of tourism related business are referred to the trade activities which are made with/through the involvement of the intermediary (third-party). The consequences of such trades would lead to the economic leakage or to be more specific is tourism leakage while this obviously presents a lose to the economic revenue of the country.

2.3 Tourism Industry and Its Importance to the Economy

This section elaborates with the importance of the tourism industry concerning share of the economy, employment and growth. Tourism has become a popular global leisure activity. The history of tourism started from the wealthy people always traveled to

² Buhalis D. "Strategic Use of Information Technologies in the Tourism Industry"

distant parts of the world, to see great buildings, works of art, learn new languages, and experience new cultures and to taste different cuisines. It was quoted that long ago, at the time of the Roman Republic, places such as Baiae were popular coastal resorts for the rich.

The world economy as of today is seen to be increasing even though unequal and remaining the distance ranging from country level to the regional level which the development gap exists within the country(ies) and amongst the region(s). The growing economic capability provides abundant opportunities for people to get travel. Leisure travel was acknowledged to associate with the industrial revolution. The United Kingdom was the European country to promote leisure time to the increasing industrial population.

There are numbers of literatures on tourism subject concurred that there are enormous benefits produced by tourism sector to the economy. Cambodia where about 80.00% of the populations work in the agriculture area has now been turning to adopt tourism sector to be one of the main wealth generators for sustaining the economic growth. World Travel and Tourism Council (WTTC) has forecasted the contribution share of tourism on GDP in 2020 for some Greater Mekong Subregion countries (Cambodia, Lao PDR, Myanmar, Thailand and Vietnam). Table 2 presents the GMS Tourism's Key indicator.

Table 2: GMS Tourism – Key Indicators					
	Cambodia	Lao PDR	Myanmar	Thailand	Viet Nam
2009 Receipts (million \$)	1561.0	267.7	196.0	15,358.0	4,227.00
Change in international arrivals 2009/2010 (%) ^a	16.0	25.1	27.7	13.1	34.9
Travel and tourism economy as share of GDP ^b	18.3	11.4	5.6	13.8	12.3
Share of GDP forecasted in 2020 (%)	15.3	10.4	6.1	17.7	13.0
Employment ^c	302,578	51,754	37,992	2,976,934	819,345
Women's share of tourism employment (%) ^d	54	50	N/A	65	70
Share of total GMS international arrivals (%) ^e	7.88	7.70	0.93	54.02	14.35

Source: GMS National Tourism Organizations; ^a Based on 2010 preliminary arrival data; ^b World Tourism and Travel Council, 2010; ^c Greater Mekong Tourism Sector Strategy Draft Final Report, 2005, p 33 suggests one job per \$5,159 expenditure in 2009 dollars. ^d ADB. (2009), *Gender Related Impacts of the Global Economic Slowdown in the Greater Mekong Subregion: Emerging Trends and Issues*. Manila. ^e Including Yunnan and Guangxi, PR China which accounted for 8.84% and 6.31% of 2009 arrivals, respectively.

The forecast of 15.30% of tourism sector will contribute to the GDP in Cambodia while this sector contributes about 6.10% in Myanmar in 2020. We perceived that through many development programs and strategies, Thailand obtains more profits from tourism sector comparing to other GMS countries (shown in table 2) on the employment level as well as the contribution share to its GDP. The result of the world economic downturn in 2008 affected the declination of the tourist arrivals in Thailand, from 61.00% in 2004 to 54.00% in 2009 (in WTTC 2010 report). However, Thailand still remains the top of country to visit of international destination amongst the GMS countries which accounted for 13.80% of its GDP share and produced almost 3million employments in the country. Furthermore, Tourism economic will be added 17.70% to the overall GDP in Thailand in 2020.

Tourism as a job creator ranks amongst the most labor intensive of the non-agricultural sectors³ and is one of the few avenues whereby unskilled and semi-skilled workers can readily enter the service economy, in both the formal and informal sector. The ability of tourism growth to create employment in the informal sector has long been recognized as a key opportunity for job creation and poverty reduction in developing countries. Table 2 also presented the employment generated in Vietnam at the remarkable level which is approximately 0.80million and Cambodia is 0.30million on job creation in 2010.

The result of development of Travel and tourism's sector has mushroomed the tour operator and travel agencies in many destination countries. In Appendix 1 shows the numbers of travel agency owner increase from 2001 until 2007 in Cambodia.

3. Tourism In Cambodia

3.1. Current state of tourism industry in Cambodia

Cambodia has been perceived as one of the reemerged destination for development in the Southeast Asia region. The recent national tourism statistics show there has been increasing remarkably of tourist receipts in the past decade and still been continued growing (Appendix 2 presents the national tourism statistic in Cambodia).

According to the Minister of Ministry of Tourism, in his Welcome Remarks of National Seminar on Tourism Development Strategic Plan 2011-2020 and National Ecotourism Policy on November 16, 2011 stated:

In 2010, tourism sector has surged rapidly everywhere in the world with the number of tourists approximately 935 millions with an increase of 7.00%, in which:

- Asia-Pacific increased 13.00%
- ASEAN increased 12.00% (approximately 65 million tourists)
- Europe zone increased 3.00%
- America increased 8.00%
- Africa increased 6.00%
- Middle-East increased 14.00%

Cambodia, in particular under the sound and brilliant leadership of Samdech Akka Moha Sena Padei Techo HUN Sen, Prime Minister of the Kingdom of Cambodia, enjoys peace, political security, security, safety and public order and has been significantly developed in all sectors, in which tourism is seen of remarkable progress. Cambodia tourism, one of the priority sectors, has been considered as the "Green Gold" which plays important role in contributing to economic development, environmental protection, conservation of cultural heritages and national resources toward Green Economy development in Cambodia.

- In 2008, Cambodia received international tourist arrivals of 2,125,465, an increase of 5.48% (and domestic tourists of 6,729,349, an increase of 15.50%);
- In 2009, Cambodia received international tourist arrivals of 2,161,577, an increase of 1.70% (and domestic tourists of 6,729,349, an increase of 15.50%);

³ Ibid& World Bank (2006): World development indicators 2006. Washington

- In 2010, Cambodia received international tourist arrivals of 2,508,289 an increase of 16.04% and domestic tourists of 7,562,623, with an increase of 7.70%.

For the first 09-month of 2011, Cambodia received international tourists of 2.1 million, an increase of 15.60%, compared to the same period in 2010. Remarkably, tourists visiting:

- Siem Reap-Angkor was approximately 1.16 million, an increase of 25.7%
- Phnom Penh was approximately 0.98 million an increase of 12.30%
- Coastal zone (South-west ecotourism) was approximately 136 thousand, an increase of 12.20%
- North-east ecotourism site was approximately 0.37million, an increase of 10.60%.

He continued, according to tourism projection, Cambodia is estimated to receive approximately 4.5million in 2015, and approximately 7million or over in 2020, generating national revenue of approximately of \$5,000 million in 2020, contributing to around 10.00% of GDP and creating around 0.80million to 1million jobs. Along with that, in general as well as during the crisis, the growth of domestic tourists has been clearly seen of its important role in contributing to national economic stability, whereby the World Tourism Organization is being interested in and paying greater attention in urging domestic tourist movement.

According to the minister's remark, tourism progression during the economic recession in 2008 could be notably appreciable and its stand/position as a consistent contribution to the macro-economics of the country during that period. A pick up number again in international tourist arrivals in 2010 is approximately 16.00% increase comparing with 2009. This clearly illustrates the government have been working very hard to promote the tourism industry in progressive, positive ways and to redevelop tourism concepts according to the needs and realities of the present day. Even though, there is consecutive growth in tourism sector yet the government has further premise to achieve the maximum economic of tourism of \$5,000million with around 1million employments in 2020. Such premise is quite challenging to the government as tourism industry is still considerably young.

According to GMS tourism report in 2011, the recent establishment of tourism marketing and promotion boards is enabling closer collaboration between the public and private sector to strengthen national marketing and promotion programs. Another key positive support in this sector is truly seen through government's many initiative programs such as the establishment of Tourism Development Strategic Plan 2010-2020 and National Ecotourism Policy, which is conformed with the National Economic Strategic Plan and certainly responds to the 2nd-Phase of National Rectangular Strategy. This development strategic plan is also in line with the ASEAN Tourist Strategic Plan 2010-2015, World Tourism Development Outlook 2020-2030 and The Millennium Development Goals of the Untitled Nation Organization.

3.2. Overview of Tourism Product in Cambodia⁴

Cambodia is home to both natural and heritage tourism attractions. There are six national parks in Cambodia, covering about 22,000 sqkm (about 12 percent of the country). These national parks were destroyed during the civil war and were not accessible until 1993. The most important national parks are the National Park of Bokor Mountain, (mountainous area) occupying a 1,000m-high plateau on the south coast overlooking Kampot province; Ream national Park (coastal area), which includes a marine reserve and is just a short distance from Sihanoukville; Kirirom national park, 675m above sea level in the Damerei mountain range, 112km southwest of Phnom Penh; and Virachay, which borders Laos and Vietnam in northeastern Cambodia. In addition to these parks, Cambodia accommodates other ecotourism locales, such as Tonle Sap Lake and its floating village, the Mekong River, and beautiful beaches along the coastal area in the southern part of the country.

There are about 1,080 ancient temples in 14 provinces in Cambodia, especially the Angkor temple complex in Siem Reap Province, the Sambor Prey Kub temple complex in KompongThom province, and the Preah Vihea Temple in Preah Vihea province. Moreover, there are other historical buildings that could attract many tourists. These include the Royal Palace, built in 1866 during the reign of King Norodom, located in Phnom Penh overlooking the Mekong River; the National Museum, built in 1917-1918, located to the north of the Royal Palace, which contains many precious ancient objects of Cambodian art and history; and Toul Sleng Museum, which presents the crimes committed during the Khmer Rouge/Pol Pot regime. There are other festivals which are for the entertainment sites for the tourists to experience the national cultural of the exclusive Cambodia such as the Khmer New Year and water festivals. All these make Cambodia a unique place for cultural heritage tourism development.

Heritage tourism has been growing very fast in Cambodia, with most tourists coming to learn about and experience Cambodian history, art and culture. The inscription of Preah Vihear temple into one of the world heritage sites, in addition to the Angkor Wat World heritage site, makes Cambodia better known for its cultural and heritage tourism. The development of tourism infrastructure to Preah Vihear will be necessary for the government and international donor countries. A connection between these two world heritage sites into one tourist destination cluster, or tourist heritage trail, would be a great value added tourism asset for Cambodia.

4. The role of IT in sustainable development of the industry

Information Technology was created many years ago and it prevails in all functions of strategic and operational management. Mansell & Wenh (1998) addressed the application of ICT are useful in facilitating development programs in many developing countries and these technologies help in supporting economic and social developments. It is common to acknowledge that IT/ICT has played major impact in many businesses and societies. ICT applications are noticeable in the air transport control, monitoring of freight and the day-to-day transport system in developed countries. A diverse ICT functions can also be pictured in other aspects such as education, environment

⁴ Vannarith C."Tourism Development in Cambodia: Opportunities for Japanese Companies".

(Geographical Information System application), agriculture, medical field, special needs for the physically challenged (the technology application has been designed especially in the need of people with physically disability), and also in manufacturing sector by linking the process chains in manufacturing.

The development of technology has also been embedded in the tourism industry. It is seen that the travel and tourism industry has also been heavily affected by ICT applications. The Internet, in particular, has been useful in many regards to the travel and tourism sector. It is used to provide multimedia information about destination to prospective travelers. It also affects auxiliary industries, such as the transport sector, which plays a major role in the tourism industry. With the aid of ICT applications, prospective travelers can view a destination, book accommodation, book the flight and other forms of transport and pay for all these without leaving their homes. In many developed countries or well-established tourism infrastructure countries (USA, EU and some Asian countries like Korea, Japan, Singapore, HongKong...), the use of ICTs have permeated the travel and tourism industry.

Mansell & When (1998) again stated ICTs in this industry consist of various components that include computerized reservation systems, teleconferencing, video, video brochures, management information systems, airline electronic information systems, electronic funds transfer, digital telephone networks, smart cards, mobile communication, e-mail, and Internet. These various communication technologies are being used in all sectors travel and tourism industry and related sectors.

In a paper written by Professor Budhalis who is a well-known tourism strategist affirmed that IT has become an almost universal distribution platform for the tourism industry and has emerged as the info-structure that supports internal and external processes in tourism organizations. IT reduces the cost of each transaction by minimizing print, coordination, communication, and distribution costs. Addition by Poon (1993) articulated that IT also helps in short-notice changes, supports one-to-one interaction with the customer, and enables organizations to reach a broad audience. Some studies by the Travel Industry Association of America (TIA) indicate that more than half of the American tourists use the Internet to acquire information about destinations and proceed the transaction via internet.

5. E-Tourism Discussion

5.1. Some Emergent E-Tourisms in Cambodian Context

It is undeniable that ICT provides the tourism industry a competitive advantage comparing to the traditional tourism industry business. Comprehensive technology can assist to create new successful business model and opportunity for each tourism agencies and for which cannot be imitated by other companies. So far, Cambodia's tourism researches and the authority have put the focus on the importance of the tourism products such as the preservation, expand the heritage sites and the cultural promotion to attract tourists. ICT applications and its infrastructure development have not been reflected as a strategic tool in business itself as well as the sustainable tourism sector in the country. The reason could be drawn from:

- The unripe ICT field in the country.
- The conception of huge investment on installation cost for necessary ICT

- applications in the business of tourism.
- Lack of trust and knowledge on the technology and not seeing the benefit.

Even though the fact shown that some local tourism agencies and related businesses (tour operator, travel agency and superior hotel) market their product through websites or blogs or by other mean of e-communications like facebook, there are large number of small and medium scales tourism businesses are still hidden from on-line mode. It is obviously seen that such conventional model which still hold by many small tourism agencies and related businesses have been considered to be a primitive mechanism which cannot compete with the advance effective mechanism such as IT. Tourist satisfaction depends highly on the accuracy and comprehensiveness of specific information on the destinations' accessibility, facilities, attractions and activities because the gap between tourist's expectations and perceived experiences is smaller and thus, unpleasant surprises from the destination or principals are minimized⁵. In many under-developed tourism industries like in Cambodia, the industry tends to be fragmented and heterogeneous, encompassing a wealth of tourism businesses that could be better organized and promoted.

The situation of tourism industry in Cambodia is not far from tourism industry in China. The study by Jennifer X.M, Buhalis D., and Haiyan S. on the ICTs and Internet adoption in China's Tourism Industry, reflected the comparable situation in the tourism industry in Cambodia. Even though there is a difference in the market economic system that tourism industry in China is heavily regulated with a high degree of the government intervention and Cambodia based on its principles of a free market economy and social equality, there are still several similar problems which both countries have been facing.

5.2. Analytical Review of Chinese Tourism's Article

5.2.1. ICT Adoption in Airline Industry

There are number of literatures show China has been one of the major international tourism destinations since early 1980s which was the period of witnessing the revolutionary development of ICTs especially internet technology. However, Tourism in China had not been seriously/evidently emphasized the usage of ICTs in the business except the airline company (TravelSky) dominantly operated some services which only in late 80s and in early 90s. The system provided by the Travel sky included: Inventory Control System started the operation in 1985, Airport Passenger Processing System launched in 1988, Air Cargo System started its operation only in 1994, Customer Reservation System (CRS) launched in 1996.

The problems of both countries (Cambodia and China) can be viewed by the review of the study on the transition of traditional tourism industry to ICTs tourism industry (or e-tourism) in China that had happened a few decades. The research by Jennifer X.M, Buhalis D., and Haiyan S., on ICTs and Internet adoption in China's Tourism Industry could give an insightful of the advantageous and bottleneck conditions of enhancing technology in the industry. The study used qualitative approaches as the main research

⁵ Buhalis, D. (1994). ICT as a strategic tool for Small Medium Tourism enterprises in the contemporary business environment, in Seaton, A. et al, (eds), *Tourism-The state of the art: the strat clyde symposium*, Wiley and Sons,, England.

method and quantitative research as a complementary method. The focus of the research was to understand the dynamic changes as well as the factors that motivate the changes of tourism industry with the impact of ICTs and Internet.

According to the paper, the suppression of the economic system in China is seen as an unfavorable factor on promoting the usage of ICTs in tourism sector. Even though TravelSky Company is the monopoly Global Distribution System (GDS) Company which handles almost all business of the airline industry in China, the company has little intention to change their fractional ICTs system to a completed ICTs based network architecture. The study explained that Travelsky company has no incentive to explore the benefits of ICTs or Internet applications because they are not able to establish their own system because of both policy prohibition and restriction of cost and time in building the whole system and data network by themselves. The reason can obviously be seen that they cannot fully control their own operation, as the government handles most parts of their operation such as procurement, pricing, route design, and distribution. The government intervention can also be reflected by another similar case of the Air China which is the country's flag carrier airline and also the largest international airline that as the enterprise is directly controlled by the government airline authority, Air China cannot respond to the market as a fully functional business. This is demonstrated in the following:

- The company cannot determine its prices according to the market conditions.
- The company cannot control its own procurement and costs. Fuel suppliers, equipment suppliers, airports, CRS and other air computing system suppliers are all appointed by the Aviation authority.
- The company has no right to decide its own flight routes without permission of the CAAC.

Due to the lack of autonomy, Air China does not have the incentive or power to develop its own ICT and Internet Strategy. We can also point out to prove the government's intervention resulted in failure of the initiating development of own web-based ticketing and reservation system of China Southern Airlines and Hainan Airlines which are the two private airlines.

5.2.2. ICT Adoption in Travel Service and Hotel Industries

The study interviewed the hotel, tour operation and the visitor attraction sites. ICTs application have been adopted in some tourism enterprises such as airlines, hotels, tour operator/travel agency in China for mostly serve the front-office management which can be regarded as at the pre-intermediate level of ICTs implementation. The study obtained the information from the yield manager of Air China that, the ICT applications in Air China focus on distribution and inventory control. The manager continued, the ICTs have little adoption within the enterprise except for an accounting system and an Intranet which is mainly used for internal e-mails. Other services such as ticketing system, it uses TravelSky who is the dominant GDS supplier in the country for all domestic ticketing, and foreign GDS for overseas distribution of international routes.

The study interview was also made with the China International Travel Services (CITS). The interviewee explained that the booking system can be made by online based system via www.citsair.com.cn. The process goes as when the customer makes a reservation on the website, after inputting certain information, the server automatically

sends an e-mail to the agent's terminal. The agent then reads the e-mail and calls the customer to confirm the booking and wait for the money to be received before issuing the ticket. This means the system is still manually maintained by the back-office staff.

Even though, after two years operation, the results from online reservation system accounts already for one-third of the agent's sales volume and with another one-third of reservation by walk-in and call-in customers, most of the e-transactions are still having obstacles at the end-tail of the process which is settlement part. The sale manager of CITS ticket office express the online settlements is a main major barrier for any online transactions. The under-developed banking system offers limited for online purchasing, whilst credit card transactions are up to a 3.00% service fee by the local banks which this makes online transactions unattractive. There are signs of the demand for the Internet travel sales in tourism industry yet the growth is restricted by the lack of trust between the buyers and sellers, an underdeveloped banking system and advanced business models do not encourage travel agencies to adopt internet commerce.

According to the paper, in the hotel sector, there is no central hotel reservation system exists in the hospitality industry in the country. ICT applications in the hotels have concentrated on front-office functions, including reservation, reception, housekeeping, cashier, catering, marketing, customer relationship management, etc. Few hotels use ICT in managing their back-office functions, including procurement, security, engineering, etc. The Internet application is used mainly for marketing tool only.

The initiation of implement ICTs in the hospitality business in China is quite unmotivated due to primary reason of the investment cost and some hotels stated that causing by the fear of losing own-benefit. Training costs and possible position changes of certain personnel brought by the new system employment are additional factors that the hotel has to consider whether to apply an information system in back office departments. It is quite unusual to learn from the paper about the reason that several hotel departments, those are the back-office managements, often benefit from under-the-table commissions by blocking information access because such red-tape practice is more realistic in the public sector rather than private enterprise like hotels.

The online reservations through hotel's websites are not truly welcomed by the hotel itself due to the lack of mutual trust between customers and hotels, as invalid bookings happen quite often, unless the deposit is made for the confirmation. Similar case happens with the tour operators and visitor attractions. There are online services available for booking and purchasing the holiday package yet customers prefer face-to-face contact when making their decision. This indicates the slow acceptance rate of the implementation of e-transaction in tour operator businesses.

6. Similarity of Characteristics of ICT Adoption in Tourism in Cambodia and China

From the study review on Chinese tourism industry, we can draw similarity of bottlenecks for which has happened in Chinese's tourism industry and been happening in Cambodia's tourism industry. Travel agencies and tour operators still does not welcome fully the implementation service of ICTs due the major concern of the huge investment cost in the system. It is indifference from the tourism related business in

China that the adoption of technology is purposely used for the front-office management.

Many travel agencies and tour operators absorb the technology but not utilize until its maximum capacities. In their daily practical/process work, ICT applies on the basic application services such as e-mailing, printing, some advertisement, accounting and for few uses for e-banking purpose. E-banking system is yet fully exercise in the country due to the service is restricted by under-developed and also the majority of people are not ready for the uptake sophisticated technological system. Therefore, if end to end process does not take place, the advantages of ICT is not fully exploited.

While the characteristic of Tourism business activities relate to fragmentation, this could easily expose to the imprecision of the transactions and the tourism industry leakage. ICTs application network appears to be on standalone basis and underutilized for sustainable development. In Cambodia, tourism industry is populated by small tourism business such as travel agencies, tour operators, hospitalities, restaurants and transportations where resources and skills are limited.

The challenges can be summed up as indicated in the Chinese Tourism Paper:

- The lack of synergy amongst various sectors within the industry, without a networking system involving all players of the industry, the advantage of IT can hardly be fully recognized.
- Lack of infrastructure required such as a communication bandwidth, technicians, information and processing standards, etc.
- Lack of information service providers and intermediaries to assist tourist enterprises.
- Fear of business/management process reengineering caused by technological innovation such as unwillingness to learn new knowledge, losing control of information or power, altering the habit of a life time formed by traditional business environment, adjusting new environment.
- The information security problem, which is in a sense of cultural concern rather than technological.

7. Conclusion

The unfulfilled ICT applications in tourism industry in Cambodia can be reasoned by the newborn of ICTs sector in the country. To deal with the above challenges, the Chinese study suggested that the government should shoulder the responsibility and take the lead in the industry of e-transformation. The government can invest in the information infrastructure development. On the other hand, to be able to visualize from the industry side, the Chinese paper also recommended that the government can push enterprises' e-business transformation by either executive orders or other compulsory means, for instance, The China National Tourism Audit (CNTA) requested that all yearly inspection documents of tourist companies have to be reported online, many companies have to build up a compatible system to connect with CNTA's network for such purpose. Finally, the government should play a role of promoter and organizer in this area by providing guidance and assistance for enterprises.

Cambodia has currently been formulating the National Tourism Strategy (2011-

2020). It is prioritizing human resource development, equitable distribution of the benefits of tourism, public and private sector cooperation, quality assurance and prevention of the negative impacts of tourism. The infrastructure development, environmental sustainability, restoration and conservation of tourism assets are also the focus in the Strategy, however, the adoption of ICT in tourism and E-Tourism promotion has not been strongly emphasized as a principal content in the National Tourism Strategy.

Therefore, this paper, as the initiative of E-Tourism study in Cambodia, has an attempt to draw the attention of the government and tourism entrepreneurs to underline the value of adoption of ICT applications and services in tourism in all tourism related businesses or create the readiness environment for E-business implementation and introduce the National Tourism Web Portal and the application of Geographical Positioning System (GPS), in order to develop and sustain tourism sector in the country.

To the author's knowledge, no similar studies have been conducted so far. The reason can simply be understood by (1) the immature ICT industry in the country (2) unfamiliar of local professional tourism researchers in the field of ICT. It could possibly be convinced that there is still lot of works to be carried out to further improve this study. Due to the limitation of time, the study is unable to practice further in-depth analysis. The study basically exercises only qualitative research method by making a comparison with tourism industry in China which was studied by Jenniefer, Buhalis and Haiyan as seeing the similarity of current situation of some tourism businesses in Cambodia.

To make a more precise eTourism analysis in Cambodia, it requires substantial labor and time commitment. The study suggests that the scholar/researcher should take initiative to conduct a quantitative study with a comprehensive methodology to quantify the benefit of ICT adoption in tourism and further assess its impacts on the national economic growth. This will surely encourage all tourism entrepreneurs to accommodate ICT services as a tool for their effective tourism businesses. Furthermore, it can also be a reference for the government to further plan on the national e-Infrastructure establishment/promotion such as national tourism web portal as suggested earlier.

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Appendix

A.1. Number of owners of travel agencies by nationality from 2001-2007

Nationalities	Owners						
	2001	2002	2003	2004	2005	2006	2007
Cambodian	118	136	128	142	157	186	224
South Korean	7	7	11	15	28	33	40
Japanese	9	11	10	10	10	11	12
Chinese	9	8	7	7	9	9	13
Taiwanese	5	5	5	6	6	3	3
Thai	4	4	4	5	5	6	6
French	2	2	4	4	4	6	6
Singaporean	2	3	3	3	3	3	3
Vietnamese	1	1	1	2	3	6	4
Italian	1	1	1	2	2	3	3
USA	0	0	2	2	2	3	3
British	1	1	1	1	1	1	1
Indonesian	1	1	1	1	1	0	0
Australian	0	0	0	1	1	1	3
Netherlands	0	0	1	2	1	1	3
Sweden	3	3	3	2	2	2	3
German	3	3	3	2	1	1	2
Canadian	0	0	0	1	0	0	0
Sri Lankan	0	0	0	0	1	1	1
Lao	0	0	1	0	0	0	0
Malaysian	0	0	0	0	0	1	1
Myanmar	0	0	0	0	0	1	2
Russian	0	0	0	0	0	0	1
Indian	0	0	0	0	0	0	1
Total	166	186	186	208	237	277	332

Source: Cheang V., PhD Thesis

A2. Visitor Arrivals, Average Length of Stay, Hotels Occupancy and Tourism Receipts

Year	Visitor Arrivals		Average Length	Hotels Occupancy	Tourism Receipts
	Number	Change (%)	Of Stay (days)	(%)	(million US\$)
1993	118,183	0.00	N/A	N/A	N/A
1994	176,617	49.44	N/A	N/A	N/A
1995	219,680	24.38	8.00	37.00	100
1996	260,489	18.58	7.50	40.00	118
1997	218,843	-15.99	6.40	30.00	103
1998	289,524	32.30	5.20	40.00	166
1999	367,743	27.02	5.50	44.00	190
2000	466,365	26.82	5.50	45.00	228
2001	604,919	29.71	5.50	48.00	304
2002	786,524	30.02	5.80	50.00	379
2003	701,014	-10.87	5.50	50.00	347
2004	1,055,202	50.53	6.30	52.00	578
2005	1,421,615	34.72	6.30	52.00	832
2006	1,700,041	19.59	6.50	54.79	1,049
2007	2,015,128	18.53	6.50	54.79	1,400
2008	2,125,465	5.48	6.65	62.68	1,595
2009	2,161,577	1.70	6.45	63.57	1,561
2010	2,508,289	16.04	6.45	65.74	1,786

Source: Tourism Statistics Report 2010, Ministry of Tourism

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