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# **The use of web 2.0 technologies in tourism industry: A conceptual model**

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## ***Abstract***

Tourism industry has been transformed dramatically by the Internet and web technologies. In the web 2.0 era, travelers' behaviors are affected by widely available user generated contents in a number of online social media. Much research has been conducted on the use and impact of web 2.0 on travelers; however, little was known from tourism suppliers' perspective. Our research therefore aims to study the topic from a holistic perspective, including activities throughout the tourism supply chain. This paper presents an initial part of the research. It reviews prior literature on the use of web 2.0 technologies in the tourism industry and proposes a conceptual model, which will be used to guide an investigation to the topic.

## ***Keywords***

Web 2.0, Tourism industry, Tourism 2.0

## **1. Introduction**

Tourism is an important industry for the world's economy, including that of Thailand. According to WTTC (2008), the tourism industry in Thailand contributed directly to around 6.6% of the country's GDP and also indirectly contributed to other services industry around 14.7% of the GDP. Its importance to the country is therefore undeniable. Also it is undeniable that Information technologies have been fundamental to the industry (Buhalis and Law, 2008) as they possess characteristics and capabilities that compatibly support business processes in the industry.

Clearly, the Internet and www technologies are critical to the success of the tourism industry, particularly in the Thai context which main revenues are from foreign travelers. Having websites and online booking channels is important for both hotels and travel agents to provide their services to customers around the world. Web 2.0 technologies, such as social media, are also playing an increasingly important role as information sources for travelers (Xiang and Gretzel, 2010). The use of web 2.0 tools, such as photo and video sharing, blogging and maps, before and during trips is becoming generalized (Chung & Buhalis, 2008).

However, few studies have focused on the use of web 2.0 technologies by tourism enterprises particularly for its supply chain management activities. Besides, prior research by Schegg et al. (2008), which investigated web 2.0 applications in tourism businesses, found low presence

of web 2.0 technologies and most tourism enterprises were still at an early stage in utilizing web 2.0. Also, limited studies on this topic were found conducted in the context of Thailand. Therefore, our research aims to explore the use of web 2.0 in the Thai tourism supply chain in order to be able to point out areas in which web 2.0 is beneficially used and areas in which web 2.0 is potentially useful but still lacking. Currently, the research is still ongoing. The scope of this paper is in an initial phase of the research where relevant literature review is conducted and the conceptual model is proposed.

This paper starts by highlight an increasingly important role of web 2.0 in driving and changing the tourism industry. It then looks more specifically on how web 2.0 could be used specifically on the supply and demand sides of the tourism supply chain. Finally the paper proposes a conceptual model which will be used as an overarching framework to explore uses of web 2.0 in all activities along the tourism supply chain.

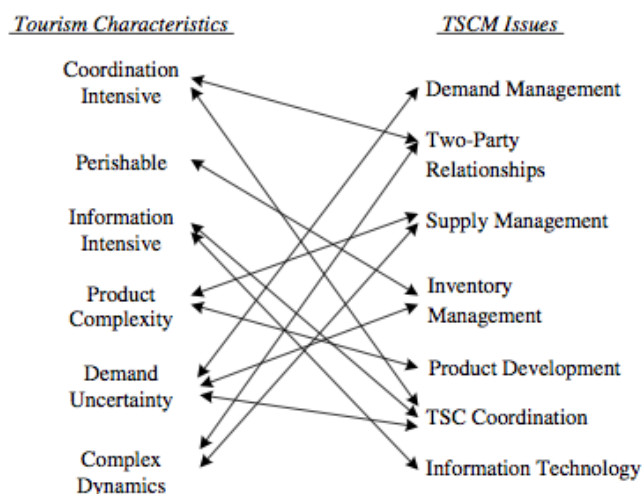
## 2. Literature review

### 2.1 The tourism supply chain

A complete tourism service package is generally comprised of accommodation, food and beverage supply, transport both to and from the destination, ground transport within the destination, and events and activities such as excursions and social activities (Tapper and Font 2004). This makes the tourism supply chain complex and unique.

The tourism products are unique in a way that they are information-intensive, perishable and at the same time dynamic, especially in terms of pricing (Zhang et al., 2009). Furthermore, demands for tourism products can change dramatically. They are easily affected by changes in economy, weather, politics, and many other variables.

From the characteristics of the tourism industry reviewed above, Zhang, Song and Huang (2009) summarized important issues that tourism supply chain managers need to deal with, as shown in Figure 1.



**Figure 1:** Tourism Characteristics and their relation to Tourism Supply Chain Management Issues

Source: (Zhang et al., 2009)

From the TSCM issues pointed out by Zhang et al. (2009), our proposition is web 2.0 can be applied in these areas to help tourism enterprises to better manage their supply chain.

Therefore, in the next section we attempt to study from prior literature on how web 2.0 technologies could be used in the tourism supply chain.

## 2.2 The tourism supply chain and web 2.0 technologies

An advancement of Information Technologies has streamlined activities along the tourism supply chain. Information Technologies have impacted on behaviors, structures, and roles of the tourism supply chain stakeholders (Buhalis and Law, 2008) not only suppliers but also customers. Undeniably, the Internet has changed the way travelers around the world decided to buy a trip; at the same time it has been helpful to suppliers and intermediaries in managing their products and services. In fact, Information and communication technologies (ICT) are claimed the strongest driving force for changes within the tourism industry (Werthner and Klein, 1999).

On the demand side, Information technologies have profoundly changed the way travelers search for tourism products/services (Werthner and Klien, 1999; Mills and Law, 2004). The Internet has been useful in information searching and price comparison, and recently social media have become powerful and influential on customers' perceptions, expectations and decision-makings. Web 2.0 technologies have enabled Internet users to become "the co-producers, the co-designers, the co-marketers and the co-distributors of tourism experiences/services." (Sigala, 2007: 6). Examples of these roles are given in Table 1.

<b>Role</b>	<b>Example</b>
Co-producers	By writing about their own trip on a weblog, travelers have provided tour operators some new ideas/tips to arrange new travel packages or perhaps new routes
Co-designers	By writing about their own trip on a weblog, travelers have probably influenced on how other travelers arrange or design their trips
Co-marketers	By providing a positive review about their previous stay in a hotel on an online community such as Tripadvisor, travelers have helped the hotel market its property and service
Co-distributors	By posting hotel deals or flight deals that they have bought, travelers have become an indirect distributor for the hotel or airline

**Table 1: Changing roles of travelers in the web 2.0 era**

One of the major features of web 2.0 is the user-generated content that is created and diffused within consumer's (travelers) networks (Sigala, 2008). The contents generated by users of web 2.0 technologies tremendously impact on profiles of hotels, airlines, tour operators and travel agents as well as on expectations and decision making of travelers. PhoCusWright (2009) revealed that nine out of ten cybertravellers usually read and trust online reviews of tourism products/services. Recognizing a similar trend, Schmallegger and Carson (2008) concluded in their paper that UGC will continue to increase in terms of both volume and its influences on the tourism industry. However, recent research on online tourism communities (Dippelreiter, et al., 2008) finds that forums are still the predominant way to discuss personal travel related questions and that Web 2.0 technologies like interactive geographic maps are not widely supported. Therefore, it is important that we understand how consumers are using and interacting with the web 2.0 environment and how web 2.0 technologies can be utilized in business functions.

On the supply side, we can see that the tourism supply chain is composed of a number of stakeholders who supply various products and services. The complexity of the supply chain makes interactions and information exchanges an imperative component (March and

Wilkinson, 2009; Zhang et al., 2009). Therefore, they need information technologies and systems to support these activities in order to be able to quickly response to fast-changing demand. In other words, information technologies are the backbone of the tourism suppliers in structuring, organizing and processing ample amount of data from other suppliers and customers in the network (Buhalis, 2003).

However, information technologies for supply chain activities have almost always been exclusively utilized by larger suppliers, such as chain hotels and global travel agents (WTOBC, 2001). In the hotel sector, supply chain activities enabled by e-business technologies mainly involve procurement of raw materials and food supply, and such use was still limited only to large hotels (e-business w@tch, 2006). This can be explained by relatively higher purchasing volumes in large hotels compared with smaller hotels. An example is Avendra.com, the largest procurement service company serving the hospitality industry. It was formed by Marriott International, Hyatt Hotels, ClubCorp USA, Six Continents Hotels, and Fairmont Hotels & Resorts to support their procurement function through collaboration (Paraskevas and Buhalis, 2002). Large-size agents provided a web-based interface that links to their inventory database and allows hotels to browse the interface and input their room rates and allotments to the agents' database. Dynamic packaging is another example of information technology which has been used only among large-size agents. It is highly complex as it involves various data sources and pre-determined packaging rules set differently by suppliers; this is to allow for the automated online configuration and assembling of packaged travel products for individual customers (Cardoso and Lange, 2007). Specific to the use of web 2.0 technologies on the supply side, very few studies are found neither on large-size nor small-size tourism enterprises. Existing studies (e.g. Sigala, 2007) merely pointed out that user-generated contents can be considered as an important source of information that tourism enterprises will need in their product development process. These contents can be useful for market research in identifying customers' needs, suggestions for product/service improvements. However, little was studied on how web 2.0 technologies can be used in managing the upstream of the tourism supply chain. Milano et al. (2011) commented on a lack of such research that besides the repeated statements on an important role of web 2.0 technologies in driving the tourism industry, we have not yet well understood on the potential usages of web 2.0 technologies in other supply chain activities than marketing.

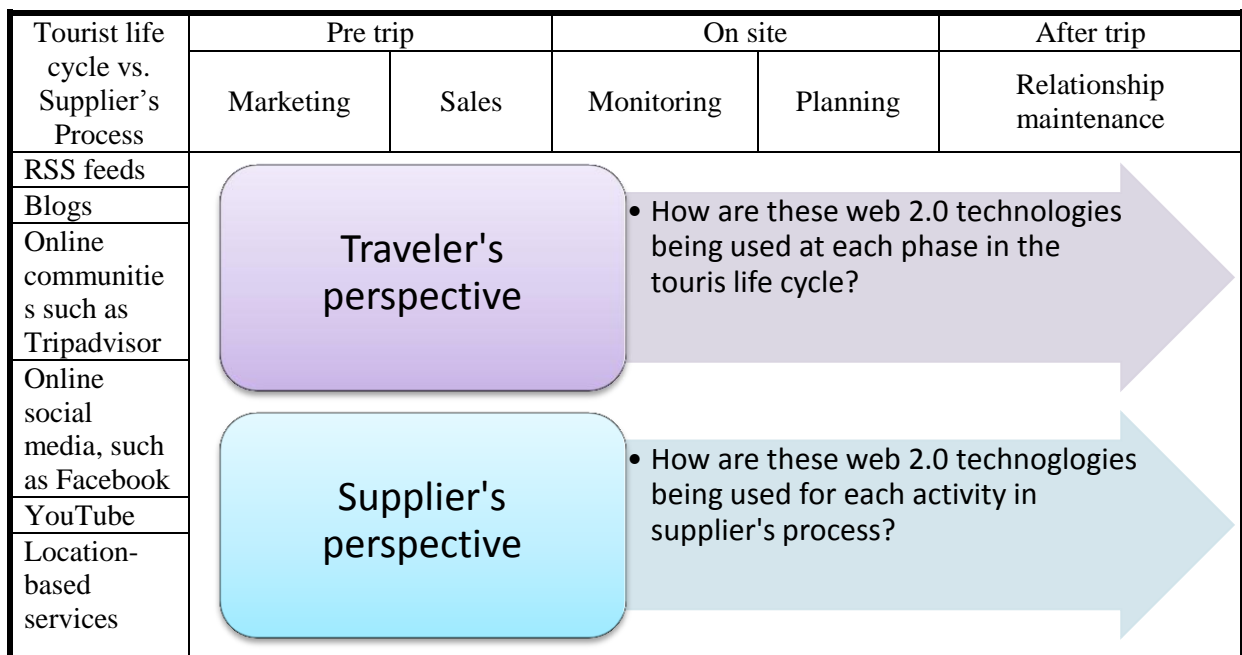
Overall, it is essential that tourism enterprises well utilize web 2.0 technologies to better understand their customers and effectively collaborate with their suppliers. This research therefore attempts to investigate the use of web 2.0 technologies by tourism enterprises as well as travelers throughout the tourism supply chain in Thailand. We believe that such a survey would be a good start for further studies in specifying areas which is still lacking and areas which have been well developed and interesting lessons can thus be learned.

### **3. The conceptual model**

As mentioned earlier that it is important to understand how consumers are using and interacting with the web 2.0 environment and how web 2.0 technologies can be utilized in business functions, we therefore propose a conceptual model which will be used as a guideline to explore the use of web 2.0 technologies by both travelers (consumers) and suppliers (including intermediaries). We believe that by considering all activities throughout

the supply chain could yield a complete understanding of how web 2.0 technologies can be used to drive and transform the industry.

Considering the supplier's perspective, previous research has suggested some key functions that are impacted by the Internet. They are promotion, product distribution, communication, management and research (Schmallegger and Carson, 2008). More specific to the tourism industry, Dippelreiter et al. (2008) suggested that key activities in tourism supply chain are marketing, sales, monitoring, planning and relationship maintenance. Focus on these activities is likely to shift at different phase of tourist's life cycle (pre-trip, on-site, and post-trip). Therefore, we proposed that an investigation of the use of web 2.0 technologies in the tourism industry should consider every phase of tourist's life cycle and all key activities in the supply chain. Figure 2 presents our conceptual model which will be used to broadly guide our data collection.



**Figure 2:** A conceptual model of the use of web 2.0 technologies in tourism supply chain

#### 4. Conclusion and Future work

This paper is an initial part of an ongoing research, which attempts to investigate the use of web 2.0 technologies in the tourism industry, particularly in the context of Thailand. The following arguments provide a basis for this research:

- i) Internet, particularly web 2.0 technologies, play an increasingly important role in the tourism industry worldwide;
- ii) the tourism industry is one of the main industries contributing to Thailand's economy;
- iii) previous research on the use web 2.0 technologies in the tourism industry focused mainly on the customer's side, while research on the rest part of the tourism supply chain is still lacking.

Therefore, we propose the conceptual model of the use of web 2.0 technologies in the tourism supply chain. Our next step is to collect data from tourism suppliers and travelers how they use web 2.0 technologies.

Our research is exploratory in nature as previous work on web 2.0 technologies in the tourism industry in Thailand is limited. Therefore, we hope that our research could provide a clearer picture of how web 2.0 technologies are being used in the Thai tourism industry and allow other researchers to investigate deeper in more specific issues of the use of web 2.0 technologies throughout the tourism supply chain.

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