The Feasibility of Technology-based Business Model for SMEs in Taiwan Tourism Industry

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Authors' contributions

This work was carried out in collaboration between both authors. Author YL designed the study, performed the interviews, wrote the first draft of the manuscript. Author KW managed the analyses of the study. All authors read and approved the final manuscript.

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ABSTRACT

Aims: This study analyzes the feasibility of tourism business model created by an integrated telecom operator in Taiwan. This research analyze its model design logic at a strategic level and design elements of content at an operational level, hoping to help this case company analyzing their current design to make them fit for the future trend to capture the opportunities in travel market.
Study Design: Case study.
Place and Duration of Study: The study was conducted in Taiwan, between May 2013 and April 2014.
Methodology: In-depth interviews were adopted for this study. To obtain more comprehensive and accurate information, the interviewees included the top-level managers and executives.
Results: This study use Business Model Canvas, which consists of nine basic building blocks, to analyze the feasibility of tourism business platform built by the case Company. The case company utilizes ICT technology and cooperates with domestic six major tourism industries to integrate

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public and private sector resources to offer free abundant digital tourism information to travelers. Results indicate that the design logic is to associate with opportunity identification and enactment focus in streaming data integration to incorporate firm level strategic thinking, which takes into consideration the alignment of the organization's resources (Fixed Line, Internet Access, Mobile, MOD, and Cloud) and provides six main services for travelers. It expects SMEs will spending in mobile ad and cloud service. This study also found the case company is significant weak in platform marketing to attract platform participants, both travel services providers and consumers. It needs to leverage social media to harness the platform effect for future rapid growth.

Conclusion: Traditional relevant players in the travel market, from travel suppliers to travel intermediaries up to travel agents, have to adapt their business models to these fundamental changes in the travel industry.

1. INTRODUCTION

With mobile devices gaining popularity, it is easy to access web services anytime and anywhere. Mobile technology has become an integral part of the tourism industry. Travelers' have become accustomed to booking airline tickets online and prefer to self-book full travel itineraries [1]. Local-based Service (LBS), Recommendation Techniques and Near Field Communication (NFC) are most famous technical topics today. Mobile Technologies provide a great platform for Add-on services at the destination, such as local events, local coupon and check-in service, etc. This innovative travel technology has potential to change all phases of the tourism landscape and can enhance travelers' experience through offering personalized services. Personalized refers to individualizing products, services, and contents according to customer interests and preferences. To capture these opportunities, various business models have sprouted and will surely continue to be a trend in the near future. Therefore, traditional relevant players in the travel market, from travel suppliers to travel intermediaries up to travel agents, have to adapt their business models to these fundamental changes in the tourism industry.

A business model describes the logic of how a firm creates, delivers, and captures value, in economic, social, cultural or other contexts to generate revenues [2]. George and Bock [3] points that the business model is an opportunity-centric design, which means a business model is a design of organizational structure to enact a commercial opportunity. Today, travel services providers need to consider the new opportunity in mobile digital context to reach a large number of customers, especially for small and medium enterprises (SMEs) [4]. This new value creation depends on how they are using existing or emerging technology to formulate a new way of doing business with minimum costs. Various business models have established and continue to take the advantage of mobile technology to develop a related new business model. However, how to capture this new opportunity in mobile digital context to reach a large number of customers arouse this research's motivation.

An integrated telecom operator in Taiwan predicts that mobile communication will have a dramatic impact on the travel experience as well create commercial opportunity. It launched the tourism business platform service and cloud Mall (wide range of Mobile management system developer) for SMEs in 2013. The company expects that SMEs can grow in sales and compete against bigger rivals through appropriate adoption of mobile technologies provided by it; meanwhile, SMEs do not have the same burden like large-sized company. Hence, tourism platform service plays an important role in helping the SMEs to be able to compete with their larger counterparts, particularly in SME travel agencies where IT development is not their core capability.

The new business of the case company provides 6 services that could satisfy travelers' daily needs, from acquiring local information within the vicinity to getting an assist in Taiwan. The new business enables travelers to access reliable and accurate information as well as to undertake travel planning. Its booking system enables users to engage directly with suppliers, which challenge the role of intermediaries. It also allowed users to interact dynamically with suppliers and destinations and often make requests that will enable them to customize their travel products. With rapid data transmission on the mobile devices, the expected response time from suppliers to customers has been greatly

reduced. The reaction to online inquiries can thus influence customer satisfactions and booking behavior. As a result, SMEs will increase spending in mobile ad and cloud services to reach more customers.

Previous studies seldom combine the business model analysis from strategic and operational perspective. The purpose of this study is to analyze the feasibility of tourism business model created for SMEs in Taiwan by the case company, focusing on the model design logic at strategic level and the design elements of content at operational level. This research looks forward to helping case company to analyze and improve their current designs to make them fit for the future to capture the opportunities in tourism market. With reviewing literature and interviewing practitioners, this paper focus on the platform business model that business process or activities performed by the case company as well as by third parties (partners, suppliers, customers). This study adopted case study and In-depth interviews were used to collect data.

Studying the feasibility of business models can help us understand the obstacles and issues in the tourism industry for SMEs in Taiwan, and rebuild the travel agency network values and formulate a win-win business environment. This platform business model is not limited to the tourism industry but also can be applied to other new web businesses as well. Based on the important elements in business model and critical successful factors, enterprise can examine current or new business if it has met the requirement. It can help business owner to be aware of potential problems and take referent action plan to reduce business risks.

This article is divided into following sections. The first section is review of the recent literature on mobile technologies and business model. Second and third sections are research design and case description. The forth part is about the study's findings, which include design logic and design elements and business process. Finally, discusses the findings and their implications.

2. LITERATURE REVIEW

2.1 Contextual Aware and Local-based Service

Due to ubiquitous cloud services, mobile users desire for local and remote services to effortlessly access context information for adaptation of activities and event notification. Cloud-based Context-Awareness service is most famous technical topic today [5]. Through sophisticated context aware computing, context-aware devices can predict traveler's needs, and guide travelers through their day in a manner more akin to a personal assistant.

Mobile technology is also having a big impact on destination services. Travel suppliers are offering destination-based content which enhances the ability for the traveler to navigate the location. Hence, LBS provide a great platform for Add-on services at the location, such as local events, local coupon push to the mobile device, and check-in service, etc. The cloud technology significantly affects the agencies and their marketing strategy. It helps them provide a more informed services, whiles at the same time empower travelers' direct contact with the suppliers [6]. Therefore, travel agency is quite suitable for study the decision of local based in cloud. As mentioned above, successful LBS is based on contextual aware of the relevant information, based on Opt-in information, profile, preferences, itinerary, check-in information, as well as the specific travel needs at the time and at their specific location.

2.2 Recommendation Techniques

Many travelers expect information and personalization whenever and wherever they travel. They are always connected and time is a scarce resource. Therefore, a variety of approaches have been used to perform recommendations in these domains to save travelers' time and efforts [7]. Just like Google has also developed tools for hotel search and for travelers to find local businesses (including places to eat) based on the travelers' locations. Several hotels are beginning to offer check-in services with a Near Field Communication (NFC) enabled mobile phone. Personalized tourism services aim at helping the user finding what they are looking for, easily without spending time and effort.

According Kabassi's [8], there are two approaches to filter data, which are content-based filtering and collaborative filtering. Content-based filtering refers to recommending services based on user's previous actions or purchases, while in collaborative filtering; the services are recommended based on the recommendations of other users. Offer optimization technologies can pinpoint the target

travelers and improve the productivity of marketing expense, resulting in high accepting of the presenting offers which is based on user profile and buying behavior.

As the result, searching and buying transactions are made easier than before, and travelers become more depend on mobile devices. Bennett and Lai [6] argued that the travel agencies' power on the distribution channels will diminish unless they can offer complimentary advice which satisfies customers' needs. It means travel agencies have to be more service-based and technologically-oriented in their advisory role to prevent them from disintermediation.

2.3 Tourism Business Model

2.3.1 The travel supply providers in Taiwan

Poon [9] indicated that tourism is an extremely information-intensive industry. Tourism products include flight tickets, room reservations, package tour bookings, car rental, cruise tickets, and other related services. Tourism industry has many relevant players, the distribution channel as shown in Fig. 1, from travel suppliers (such as airlines, hotels and railways) to travel

intermediaries (such as consolidators, tour operators, and global distribution systems) up to the travel agents. Those services providers are mostly rely on travel agencies to contact wide range of customers [1].

Travel suppliers are divided into wholesalers and retailers in Taiwan. The retail travel agencies direct contact with tourism products suppliers or indirect contact via wholesale agents. Generally speaking, retail travel agencies are closest to the travelers and assist them on searching and booking their choices of products or services. At the same time, online travel agencies, such as Easy-travel, Priceline, continue to grow fast and are gaining market share. It leads all players in the travel market increasing their efforts to directly sell to the end-consumer through internet or mobile marketing and climbing the travel trade's value creation ladder. In this way, and by using tie-ups with the travel services of other providers, they are becoming travel intermediaries and even tour operators themselves. For example, Airlines have long depended on travel agencies as their distribution channels to contact wide range of customers, have realized that the internet or mobile allows greater chances to reach customers directly and to cut the cost of intermediaries.
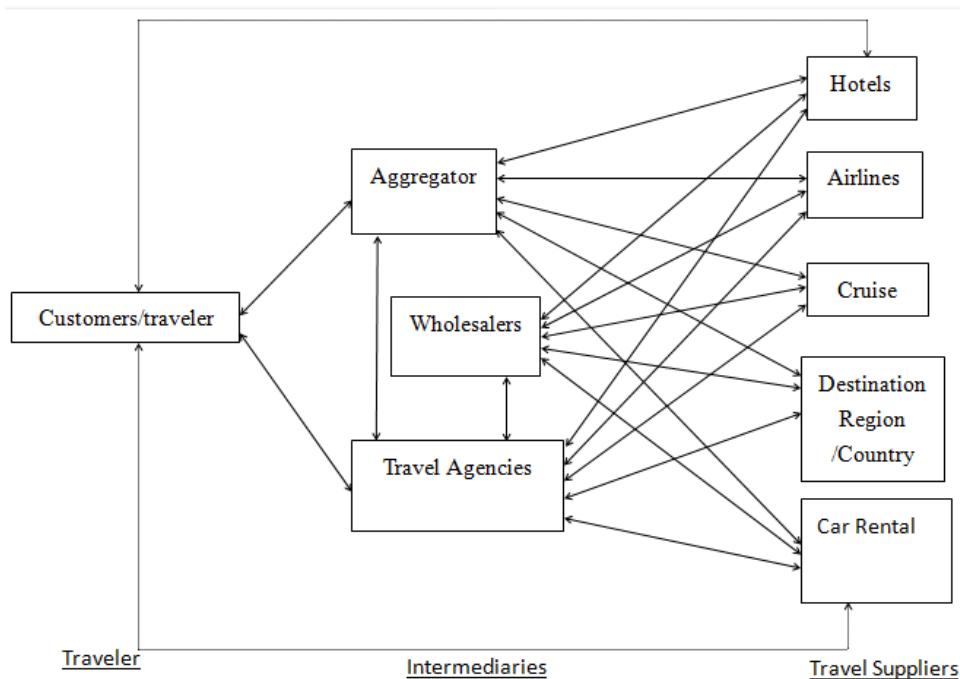

Fig. 1. The distribution channel in tourism

2.3.2 The change of value chain in travel industry

Due to the advance of mobile technology, travel industry gradually generates a new paradigm shift. This changes the structure of the entire industry and develops a wide range of opportunities and threats for all players. Industry faces challenges of market fragmentation, channel proliferation and new entrants' threats. Mobile technology has become an integral part of the travel industry. It has impacted all phases of the travel lifecycle. Hence, travel intermediaries need to adapt their business models to these changes in travel environment.

With LBS application, travel suppliers increase capability by deploying new mobile device-based services and applications that give connected-passengers access to all their travel needs while on the move. Particularly, context information can be delivered to traveler when he/she is at destination. This context information sends to traveler by several context services through context broker or informdiary, as shown in Fig. 2. The Context Broker is in charge of selecting appropriate context services to deliver context information to which a context consumer has required. To a certain degree, this LBS at destination can enhance the traveler experience.

Industry has collected enough personal information, profile and preference about its customers, so it can personalize the user interface as well present the relevant information to its customer based on profile, preference, buying history to improve the customer experience at destination. Therefore, the companies who are actively deploying emerging location technologies can gain competitive advantage.

2.3.3 Platform business model for tourism

With the pervasion of internet-enable mobile device over the last few years, such as iPhones, iPads, iPadmini, and Android-based smartphones, mobile users are increasingly requiring services tailored to their context as they are on the move. Our informant unanimously agreed that tourism services should be context-aware to deal with the changing environment of the user. According to Dey [10], Context-Awareness web service is "any information that can be used to characterize the situation of entities", such as the location, time of day, people, devices and services nearby, and user activities. Ubiquitous computing makes use of context-awareness collected from the environment for context definition and service adaptation in real time [5]. Enhancing travelers experience with context and making journey simpler and smooth.

Bonchek and Choudary [11] distinguish pipe (linear business models) and platform (networked business models) business models. The model of pipe is that firm creates stuff, push them out and sell them to customers. Traditionally, Pipes have been the dominant model of business in old economy, and its value is produced upstream and consumed downstream. However, platform has at least two distinct user groups that provide each other with network benefits, also allowing participants to create and consume value. Most of platform models are developed and used over the web or mobile platforms. Hence, tourism service providers need to adapt their business models to these changes in digital economy - the mobile application market.

As shown in Fig. 3, this kind of tourism business model aims to boost competitiveness of tourism SMEs in the digital economy by helping them gain the right skills to design, promote and sell their products and services. Tourism SMEs can operate and engage with customers in B2B interactions on the constantly evolving digital market at affordable rates. Interconnecting with all relevant market players, this platform offers a one-stop-shop online travel planning for traveler, and offer more tailor-made tourism for individual traveler. Visitors also can plan and share their travel experiences via this platform. It allows tourism service providers to create value on the platform for other participants. Creation of network value is more important than simply bringing in users. The services of ICT serve as the underlying infrastructure that enables groups to interact with each other, making it is better to respond rapidly. Hence, complementarities of business models between partnering firms is platform main thinking.

Triposo is a similar kind of open-source travel content aggregation mode. It sells various travel services from within the guides, and doing hotel bookings. It delivers up-to-date information, detailed maps and intelligent recommendations for the entire world. It provides custom real-time recommendations of point of interest (restaurants, museums, shops, parks, etc) to go, just according traveler's location, time and personal

preferences. Downloading a Triposo destination guide to a smartphone, once traveler's in destination, just check Triposo for real-time information about where you are and what is around you.

Triposo crawls data from the open content (from World66, Wikitravel, Wikipedia, Open Street Maps, Tourist Eye, Dmoz, Chefmoz and Flickr), apply some algorithms and fully automatically generate travel guides that cover for more than 15,000 destinations in 200 countries around the world. It can make dynamic, personalized recommendations about activities, museums, shopping and shows as well as parks, beaches and places to eat, drink and dance with the locals. Also can book a tour, plan sights to see, consider a day trip and find places to stay and eat. They just charge hotel providers for advertisement.

Another popular emerging travel model is AroundMe. It is an application used in local search, convenient users finding what they want, when they need it. It allows traveler to search for the nearest restaurants, banks, gas stations, book a hotel or find a movie schedule nearby. It integrated the Augmented Reality features and provides GPS-driven direction to user chosen destination. AroundMe work with Booking.com, Opentable.com, Four Square, and many localized POI providers. But Around Me just uses at destination, not like Triposo can use entire travel lifecycle (pre-trip, at destination, post-trip). ArounMe not like Triposo, it has more source of revenue, such as hotel booking (profit share with Booking.com), advertisement from clients, App user.

3. RESEARCH DESIGN

This study wants to select a new provider of tourism business platform to analyze its feasibility. The case company is a telecommunication corporation in Taiwan. Because case company has been consistently leading the developments of Taiwan's telecommunication industry with its solid experience and professional leadership, it decided to offer a network travel service for SMEs and travelers in the second half year of 2013. The case company was developing tourism platform business model in 2013 and the time period just met this study's requirement for the feasibility analysis of new comer's business model.

In-depth interviews were used to collect data. To obtain more comprehensive and accurate information, the interviewees included the top-level managers and executives. This research also visited the case company to conduct several informal interviews. The initial data was gathered by these visits, which offered an initial idea about why case company wants to involve the platform tourism business.

The interviewee included the relevant SME travel service providers that are travel agent, hotel, and restaurant. Seven interviews were conducted over a period of 2 months. Each interview ranged from 35 minutes to 1.5 hours. Secondary data were collected from the companies' web site, company documentation and publicly available information, using it to triangulate the data obtained from the interviews. Semi-structured interviews were conducted with owner-managers or managers who were responsible for IT adoption. The questions were focus on discussion on the experience of using the technology and its evaluation both internal and external. The technology and business issues were also discussed to learn about their thinking to create a new value to support or enable their business.
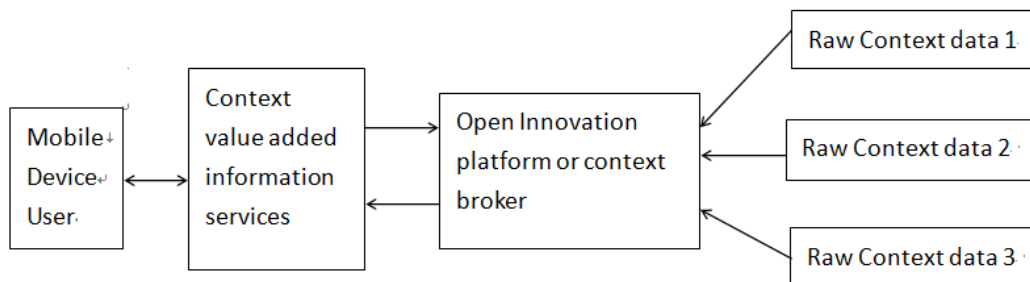

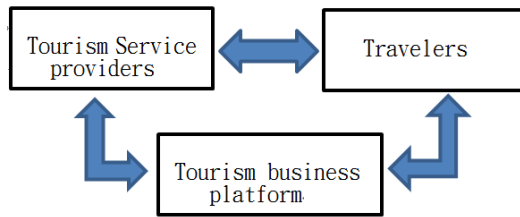**Fig. 2. Framework for local-based personal service**

Fig. 3. Platform business model

4. CASE DESCRIPTION

Case company is an integrated telecom operator, having 24,211 employees (as of May 2014), US$ 7.46 billion annual revenue (2013 consolidated) [12]. Its major business groups include Fixed Line, Internet Access, Mobile, MOD and Cloud. Thanks to its vast network infrastructure and capabilities, case company continues to tap into emerging businesses, the value-added business, as well as opportunities in cloud and ICT business for SMEs. Case company focused heavily on promoting its mobile value-added services (VAS) and upgrading its broadband services, it grew its mobile internet subscribers to 3.94 million, and expanded its market share to 34.8% in 2013 [12].

To tap the tourism market business opportunities, case company plan to introduce a tourism business platform for SMEs tourism sector to enhance its network build-out. In July, 2013, case company launched a new travel service platform for SMEs and travelers, which provide 6 services to satisfy traveler's daily needs, from acquiring local information to getting any tourism-related help in Taiwan. It expects this partnership to further strengthening SMEs loyalty and satisfaction with its services. At the same time, this new business model will bring its travel customers to a refreshing viewing experience with the platform which seamlessly integrated across mobile and internet and boost its mobile internet subscribers.

5. FINDING

What is Business Model? Zott and Amit [13] and Amit and Zott [14] define business model as depicting 'the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities' (p. 219). Today, most of the businesses models are heavily depend on existing or emergent technology. With technology, businesses can

reach a large number of customers with minimal costs.

This study follows George and Bock [3] suggestion that business model design involves two parts. The first part is to defining the business logic of a company at the strategic level, the second part refers to the design elements and business process at the operational level.

5.1 Business Model Design Logic for Tourism Business Platform

In light of SMES being considered as major economic players and a potential source of national, regional and local economic growth [15] software providers' attention have moved to SMEs, offering them a wide range of mobile technology systems which were formerly adopted by large firms only. How case company mangers develop a framework for travel model to capture the travel business opportunities? Hashim [16] indicate that a virtual business operating environment provides facilities that allow SME owners to build their business in a holistic way. SMEs can find and engage LBS services that match their own needs, compose services if needed, and monitor their business operations over outsourced services.

Case company predicts that mobile communication will have a dramatic impact on the travel experience as well create commercial opportunity. It provides tourism business service and cloud Mall (wide range of Mobile management system developer) for SMEs. SMEs can grow and compete through appropriate adoption of mobile technology, and they do not have the same burden like large-sized company. Hence, cloud Mall plays an important role in helping the SMEs to be able to compete with their larger counterparts, particularly in SME travel agencies where IT development is not their core capability.

Follow Fig. 3, this platform enables travelers to access reliable and accurate information as well as to undertake travel planning. This platform's booking systems enabled users to engage directly with suppliers and challenging the role of intermediaries. It also allowed users to interact dynamically with suppliers and destinations and often make requests that will enable them to customize their travel products. With rapid data transmission on the mobile devices, the expected response time from suppliers to customers has been greatly reduced. The reaction to online

inquiries can thus influence customer satisfactions and booking behavior. As a result, SMEs will increase in mobile ad and cloud Mall spending (B2C2B).

This part associated with opportunity identification and enactment focus in a coherent manner to incorporate firm level strategic thinking, which takes into consideration the alignment of the organization's resources with the environmental factors in achieving competitive advantage in varying combination of cost, quality, time, and flexibility. This platform business model utilizes ICT technology and cooperates with domestic six major tourism industries to integrate public and private sector resources offering abundant digital tourism information. It associate with opportunity identification and enactment focus in streaming data integration to incorporate firm level strategic thinking, which takes into consideration the alignment of the organization's resources (Fixed Line, Internet Access, Mobile, MOD, and Cloud).

5.2 Design Elements and Business Process

Business process and elements design involve a set of interdependent organizational activities centered on tourism platform, including those conducted by the case company, its partners, vendors or customers, etc. This article would like to exam how case company business process has been shaped according to the Design logic. What are the design elements of content, structure and governance to construct the network structure for the platform business model?

Tourism business platform currently collaborate with six industries, including travel agent, hotel industry, restaurant industry, souvenir shops, transportation companies and logistics service industry, offering package tours, hotel booking information and ordering online restaurant reservation service.

In addition, the platform's trip planner can provide more detailed itinerary just according the time required by various transportation modes. With the streaming data integration of maps, attractions, businesses, lodging, transportation and other types of information, it is convenience for travelers to easily arrange daily trips online and download the itinerary to mobile device before beginning a journey. The six main

services provide by case company including following [17]:

1. Information: Provides up-to-date travel news and events, as well as the domestic travel agencies enquiry and ordering service.
2. Attractions: Provides information of the attractions in Taipei in both text and audio format based on users' current GPS position. There are 3 display modes to choose from: List mode, Map mode, and AR mode as well as the hottest tourist attractions in Taiwan recommended by China Airlines.
3. Traffic: Provides domestic air tickets query services, as well as the Taiwan Railway and High-speed railway's boarding information.
4. Restaurant: Provides EZTable online restaurant reservation. (Only available in Traditional Chinese.)
5. Accommodation: Cooperation with the largest reservation in the country, EZHOTEL, and provides a variety of accommodation options.
6. Gift shop: Offers hands on information about souvenir for passengers queries.

In Osterwalder and Pigneur [2] view, the success of a business model is determined by nine factors, which can show the logic of how a firm running a business; it includes value propositions, customer segments, cost structure, revenue streams, key partners, key activities, key resources, customer relationships and channel. This study adopted Business Model Canvas [2], which consists of nine basic building blocks, to analyze the feasibility of tourism business platform built by case company. According the data, this study drafted out the 9 blocks of the case company's tourism business model that described as in Table 1. This platform's goal is to provide services that could satisfy travelers' daily needs, especially for ICTE (Information, Communication, Transaction, Entertainment). It can enable travelers to access reliable and accurate information as well as to undertake travel planning. Meanwhile, it offers a platform for SMEs to develop travel E-commerce to create a new value and expand customer base and CRM. User just browses the trip on the internet in the Travel Web, and use the Trip DIY to create his/her own trip and save or edit it again. Every trip has its own QR Cod and user can download the itinerary to mobile device before beginning a journey.

Table 1. Tourism platform business model canvas

Key partnership	Key activities	Value propositions	Customer relationships	Customer segments
6 travel industries, including 6 travel agents, 700 hotels, 400 restaurants, souvenir shops, transportation and logistics service	Useful and handy trip planner, Local based data service, Platform marketing **Key resources** Internet and mobile infrastructure, ICT technique, Cloud service	Providing 6 services satisfy travelers daily needs for ICTE (Information, Communication, Transaction, Entertainment) in one stop travel planning	Strengthening B2C &, B2B relationship to co-create value to keep loyalty and satisfaction **Channels** APP store Fan page SEO	Local and foreign Independent Travelers who like travel information-sharing on social media
Cost structure			**Revenue streams**	
Google map API APP software and Web design ICT services to construct a new value chain with six travel industries			APP & Web advertising In APP purchasing WiFi service Cloud mall services for SMEs customizing their travel services	

In addition, this platform allows users to interact with suppliers and destinations and make requests. As result, it will enable travel service providers to customize their travel products. With rapid data transmission on the mobile devices, the expected response time from suppliers to customers has been greatly reduced. The reaction to online inquiries can thus influence customer satisfactions and booking behavior. As a result, SMEs will increase in mobile ad and Cloud service spending (B2C2B), which is provided by the case company.

The rise of platform is being driven by three transformative technologies: Cloud, social, and mobile [11]. The case company has the cloud and mobile technology to create connection by making it easy for others to plug into the platform and interact between participants. However, the case company is significant weak in marketing to attract platform participants, both travel service producers and consumers. It needs to leverage social media to harness the platform effect for future rapid growth, and also needs to pay attention to the design of incentives, reputation systems. If it can attract more users, it would become more valuable to those users. In considering this, at the beginning of this year, case company launch a new mobile app service

allowing user to tap into its existing social networks on Facebook for travel advice, as well as communicate with other travelers via the sites' own social travel network.

Another potential problem for case company is about database. Data is at the heart of this kind of business model, most of the competitors crawls data from the open content to support abundant database. Because the corporation's image is "to be a value-creating and trustworthy company providing information & communication services", the case company does not want to capture data from the open content, only utilizes ICT technology and cooperates with domestic six major tourism industries to integrate public and private sector resources to offer reliable and accurate information. This study also found that this business process seemly ignore the travel lifecycle (pre-trip, at destination, post-trip). Most of the platform elements are focusing on pre-trip and post-trip; but the application at destination is limited.

Every business today is faced with the fundamental question that underlies platform model. Only the case company manages to solve its problem, it would come to term with the right business model which will allow it to make a difference tourism business model in Taiwan.

6. CONCLUSION

With the convergence of business models, all players in the travel industry need to define how they will build and sustain a competitive advantage. Travelers enjoy technology-enabled service delivery. LBS service helps them discover the unexpected and experience travel in destination. Local-based Context-Awareness is a new business concept, currently not yet forming a new industry. But the business model was sprouting and for sure to be a trend in the near future. Therefore, early establishment of this kind of service business model is necessary to grasp business opportunities and create a competitive advantage.

This LBS Business Model is not limited to tourism industry but also can be applied to other new web businesses. Based on the important elements in business model and critical successful factors, enterprise can examine current or new businesses if it has met the requirement. It can also help business owner to be aware of potential problems and take referent action plan to reduce business risks.

The case company's design logic is to associate with opportunity identification and enactment focus in streaming data integration to incorporate firm level strategic thinking, which takes into consideration the alignment of the organization's resources (Fixed Line, Internet Access, Mobile, MOD, and Cloud) and provide six main services for travelers. It expects SMEs will spending in mobile ad and cloud service spending. This study also found the case Company is weak in platform marketing to attract platform participants, both producers and consumers. It needs to leverage social media to harness the platform effect for future rapid growth.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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