The Thai Medical Tourism Supply Chain:
Its Stakeholders, Their Collaboration and Information Exchange

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Abstract

Medical tourism makes a significant contribution to many countries' economies, including that of Thailand. Theoretically, to increase competitiveness of the whole industry, efficient management of the supply chain is key. Therefore, this study investigates the Thai medical tourism supply chain; it attempts to understand who the key stakeholders are, how they collaborate, and how data and information flow along the supply chain. In-depth interviews were conducted with 54 stakeholders in the industry, including medical service providers, hotels, travel agents, and other collaborating institutions, to gain thorough understanding and insights into the industry. By providing a clearer picture of the Thai medical tourism supply chain, this study points out a lack of collaboration and integration among the stakeholders in this sector and an inactive role of travel agencies in aggregating information from all stakeholders and linking medical service providers with tourism service providers. There is also a need for a long-term policy and macro-level support from the government. In addition, by looking at the information flow along the medical tourism supply chain, this study reveals limited data exchange among the stakeholders. This is a result of minimal collaboration among them, as noted above.

Keywords

Introduction

"Medical tourism" refers to a vacation that involves traveling across international borders to obtain medical services. It usually includes leisure, fun, and relaxation activities, as well as wellness and health-care services (Heung et al. 2010). According to Kasikorn Research Center (Ngamsangchaikit, 2017), private hospitals in Thailand expected to earn around THB 48-49 billion, an increase of 3 to 4% year-on-year. The medical tourism industry was forecasted to contribute approximately 16% per year to the growth of the tourism sector in Thailand during the period 2017-2020 (KPMG, 2018). This figure reflects the importance of the industry to the country's economy.

In the 2017-2018 E-Health Strategy Plan by the Ministry of Public Health, Thailand has planned to become ASEAN's medical hub and to promote the medical tourism industry. In 2017, the Thai government extended the visa-free stay in Thailand for medical tourists from CLMV countries (Cambodia, Lao, Myanmar, and Vietnam) and China to 90 days. This was part of the plan to promote the medical tourism industry.

Given the importance of this industry, there is a clear need for more research on how to increase the effectiveness and efficiency of the industry in order to be more competitive (Rahman and Zailani, 2017). Specific to the Thai context, several previous studies have focused on analyzing the competitiveness of the industry and on understanding how to make it more competitive by identifying strengths and weaknesses. Little attention however, has been paid to how stakeholders in the industry should or could collaborate to enhance efficiency and further improve the industry's supply chain. Furthermore, to realize the full potential of the medical tourism sector an understanding of strategic planning and coordination among the key players is required (Heung et al., 2010).

Therefore, the main purpose of this study is to investigate the medical tourism industry in Thailand from the supply chain perspective (a key strategic approach to develop competitiveness in any industry, in order to see who the key stakeholders are, how they collaborate, and how data and information flow along the supply chain. An additional purpose is to identify strengths and weak components of the chain and thereby encourage improvement in the effectiveness of the chain. Given the main purposes, two key research questions are as follows:

1. How are the key stakeholders in the Thai medical tourism supply chain related to one another in terms of collaboration and networking?
2. How does information flow along the Thai medical tourism supply chain, and how can IT be used to facilitate the flow?

This paper approaches the problems by:

1) identifying key stakeholders and overall characteristics of the Thai medical tourism supply chain,

2) identifying key activities, data, and information required by and exchanged among the key stakeholders in the medical tourism supply chain, and

3) studying the use of IT by the stakeholders in facilitating the supply chain collaboration

Literature Review

The medical tourism industry and its importance

"Medical tourism" refers to a vacation that involves traveling across international borders to obtain medical services. It usually includes leisure, fun, and relaxation activities, as well as wellness and health-care services (Heung et al., 2010). TRAM (2006) groups medical tourism products and services into four main categories, including treatment of illness, cosmetic (enhancement) surgery, wellness, and reproduction (fertility).

The medical tourism (MT) industry is emergent and growing worldwide (Chuang et al. 2014). Increasing numbers of countries have enthusiastically marketed themselves as MT destinations (Connell, 2013). The industry contributes significantly to the world's economy. Investing in the medical industry helps increase gross domestic product (GDP), improve services, generate foreign exchange, create a more favorable balance of trade, and boost tourism (Ramirez de Arellano, 2011). It has been estimated that the industry generates annually around US$60 billion worldwide (Heung et al., 2010).

Driven by high healthcare costs and long waiting periods in the USA and several European countries, medical tourists seek care in Asia and Latin America (Hopkins et al. 2010). These tourists are usually wealthy and able to afford alternatives that cater to their needs (Connell, 2006).

Although there are several countries in South America which have emerged as new medical tourism destinations, Asia remains the world's main MT destination. India, Thailand, Singapore, and Malaysia are among the top MT destinations in Asia (Connell, 2006). Medical tourism in Malaysia, Thailand, Singapore, and India was predicted to generate more than US$4.4 billion per year in 2012 (Singh, 2008). Bloomberg (2014) estimated that there were around 1.8 million foreign patients in 2013. Despite the critique of overestimated numbers (e.g. Ormond and Sulianti, 2014; Noree et al. 2016), the interest in the industry and its growth have continued.

In Thailand, medical tourism is largely concentrated in Bangkok, Phuket, and Chiang Mai, and the biggest provider is Bumrungrad International Hospital, which accounts for nearly a quarter of all medical tourists to the country (Connell, 2013). Interestingly, one of the positive effects of MT is that any increase in MT raises the wages in the sector, thereby retaining skilled medical workers who would otherwise leave the country (Beladi et al. 2015).

The Thai medical tourism industry

After the 1997 economic crisis in Thailand, leading private hospitals started to expand and look for more foreign customers as an additional source of revenue (Alberti et al. 2014). Also, after the 9/11 incident, tourists from the Middle East have turned to Asia, including Thailand, to seek medical services instead of going to America (Cohen, 2008).

In 2010, the Thai Institute of Small and Medium Enterprise Development (ISMED) initiated an attempt to develop an MT cluster with financial support from the government. According to Alberti et al. (2014), the early members were the Thai Hotels Association, the Private Hospital Association, the Association of Thailand Travel Agents and the Translators and Interpreters Association of Thailand. Later on, the Office of Small and Medium Enterprise Promotion (OSMEP), the Department of Export Promotion (DEP), the Department of Industrial Promotion (DIP), and the Tourism Authority of Thailand (TAT) joined the cluster.

The Thailand Medical Tourism Cluster (www.thailandmedicaltourismcluster.org)[1] has been defined within the Thai MT sector (shown in Figure 1 below), as composed of seven key stakeholders, including hospitals, specialty clinics, hotels, tour agents, nurses, ambulance service providers, and interpreters. Harryono et al. (2006), however, took an activity-based approach and pointed out that core providers are those who provide core medical tourism activities, including medical services, cosmetics, dental services, and tourism activities. Therefore, they identified healthcare providers, international transportation, hotels, and agents/operators as core providers or suppliers. Alberti et al. (2014) also took an activity-based view but included a more comprehensive list of medical tourism stakeholders as shown in Figure 1.

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[1] The Thailand Medical Tourism Cluster was merged into a new association, called the Thailand Federation of Medical Tourism Associations, led by Dr. Prapa Wongphet (imtj.com, 2011).
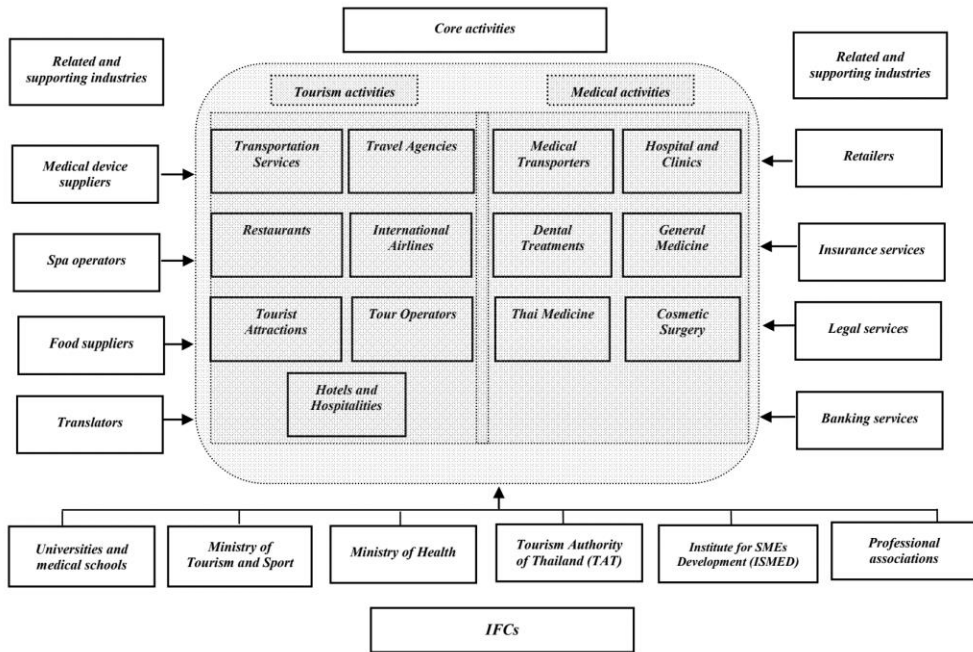
Figure1 The medical tourism industry in Thailand

source: Alberti et al., 2014

Due to the importance of the MT industry to the country's economy, many studies have focused on making the industry more competitive. For example, Kantavongvan et al. (2014) studied factors contributing to the competitiveness of the Thai MT industry, while Srisomyong (2018) studied the competence of Thai MT providers. Little attention has, nevertheless, been paid to how stakeholders in the industry could collaborate to enhance efficiency and further improve the industry's supply chain.

The medical tourism supply chain and supply chain management

Mentzer et al. (2001) defined a supply chain as "a set of organizations directly linked by one or more of the upstream and downstream flows of products or services, finances, and information from a source to a customer." Supply chain management helps build strong sustainable tourism destinations (Grilec-Kauric et al. 2015) and adds competitive advantages to stakeholders in the chain (Lee et al. 2011).

In an MT supply chain, the network of stakeholders is complex. It is composed of at least five independent sectors: accommodation, chemistry and pharmaceuticals, hospitals, transportation, and insurance (Lee and Fernando, 2015) The upstream end of the chain includes exchanges of products, services and information between medical suppliers, hospitals and clinics, while the downstream includes the flow of services, finances and information from hospitals or clinics to the customers. According to Heung et al (2010),

key players in the MT supply chain include hospitals, medical travel agencies, hotels, and the medical tourists. In other words, the key players are in the downstream end where services are delivered to the medical tourists. The authors point out that strategic planning and coordination among these key players will unleash the full potential of the industry. Despite being in independent sectors (healthcare and tourism), these key players have to collaborate in order to provide complete MT services (Lee et al. 2011). Lee and Fernando (2015) show that both MT supply chain coordination and information-sharing have a direct effect on organizational performance. Therefore, information sharing among stakeholders in the chain is a useful strategy that should be encouraged.

Considering the need for coordination and collaboration among the stakeholders, several researchers (e.g. Sobo et al. 2011, Solomon 2011) highlighted the importance of medical travel agencies or medical travel facilitators in coordinating and facilitating the growth of the MT industry. These are specialized MT agents who affiliate with hospitals, hotels and airlines to provide MT packages (Connells, 2013) and help medical tourists to select a destination, facility and provider (Heung et al. 2010). The MT agencies or tourism facilitators provide trip coordination responsibilities for the travelers. This type of intermediary is a relatively new phenomenon, but there is a clear need for more reliable information and service than general leisure trips (Cormany and Baloglu, 2011).

In terms of activities along the MT supply chain, the model medical tourism sector illustrated by Alberti et al. (2014) appears to cover more details than others. It shows that core activities involve both medical and tourism services. The authors also state that local government agencies and service providers, such as retailers and banks, are supportive to the medical tourism supply chain. They are also mandatory in many countries. Ganguli and Ebrahim (2017) support the important role of the government in the development of the MT industry and show how appropriate long-term government policies have led to significant positive MT outcomes in Singapore. Similarly, Kazemi (2008) also highlights the important role of government in ensuring the safety of visitors, introducing adequate medical visas for long stays, and maintaining adequate numbers of skilled medical personnel in the industry.

In summary, the literature on medical tourism supply chains has recognized the importance of cooperation among the supply chain stakeholders, and of the integration of information and service flows throughout the chain. If the stakeholders can seamlessly integrate or at least effectively collaborate, the efficiency of the whole supply chain and the cluster will increase. Therefore, this study focuses on the flows of services and information at the downstream end of the MT supply chain in Thailand. It attempts to understand whether and how the medical tourism stakeholders cooperate and exchange information.

Information Technologies in the Medical Tourism Industry

As information exchange is one of the key activities in supply chains, information technologies are of course essential in facilitating the exchange. This study therefore investigates IT uses in the MT supply chain.

According to Connell and Young (2007) any social processes involving healthcare delivery require information; thus, there are a number of ways that IT can be used to facilitate the information flow in the healthcare delivery process. Many researchers (e. g. Sheldon 1993; Buhalis and Licata 2002) agree that tourism relies heavily on IT throughout its value chain.

In the general tourism industry, the adoption of IT systems such as Computerized Reservation System (CRS), Global Distribution System (GDS), websites, and Information Exchange Standards have been well studied. Similarly in the context of healthcare, the adoption of Computerized Physicians Order Entry (CPOE), Electronic Health Record (EHR), Customer Relationship Management System (CRMS), and many other relevant technologies have been widely discussed (e.g. Adler-Milstein and Bates 2010; Hung et al. 2010; Abraham et al. 2011; Lluch, 2011).

In the context of the MT industry, however, few studies were found studying IT adoption and use specifically for this sector. Prior research focused only on medical travelers' use of IT to find out relevant information or how information on the internet affects medical travelers'decision-making on particular medical services.For example, Patterson (2007) found the internet to be an important source of information for medical tourists in selecting destination and medical service provider. Similarly, Lee et al. (2007) found that US tourists rely heavily on the internet for travel planning. High-quality online information can be an influential factor in medical tourists' decisions to select any destination (Mason and Wright, 2011; Loda, 2011).

Scaglione et al. (2009) also demonstrated how the internet is an important link between customers and MT providers. It facilitates information exchange, business transactions, and relationship management. In turn it allows MT providers to reduce distribution costs, improve marketing and market access, and increase revenues.

Chou and Chou (2002) focused on a healthcare information portal and learned that such a portal allows a healthcare provider to increase competitiveness by accelerating the flow of medical information. Besides, a healthcare information portal can improve communications among healthcare providers, business partners, payers, physicians, and patients. It can also reduce diagnosis time, improve healthcare quality, and enhance patients' service and satisfaction - all through online service.

A recent study by Connell (2016) has shown that social networks play an important role in shaping choices and decisions on medical tourism destinations. Websites are also

considered an important marketing channel for showcasing doctors' experience and expertise and for providing information concerning available services, treatments, and equipment (Moghavvemi et al. 2017). Cormany and Baloglu (2011) reviewed global medical travel-facilitator websites and surprisingly found no such site in Thailand, despite the fact that the country is a major global medical tourism destination.

In summary, it can be seen that existing research focuses on the use of IT for marketing and providing information for medical tourists, but no research has paid attention to what data and information will be needed by medical tourists. Therefore, this study will begin to fill this void by investigating the use of IT adoption in linking stakeholders in the medical tourism supply chain together, and by reviewing the data and information being exchanged among the stakeholders. This approach is supported by the findings of Eichhorn et al. (2008), that medical tourism providers must understand the wide range of information needs of the society and attempt to develop specific communication sources that fulfill those needs.

Research Method

Given the research questions and objectives, this study is exploratory in nature. A qualitative approach and in-depth interviews are used to obtain primary data from stakeholders in the Thai medical tourism industry. According to Heung et al. (2010), in-depth interviews with key players (in this case medical tourists, hospitals, hotels, medical travel agencies, and government) provide first-hand information on the latest developments in medical tourism. In addition, qualitative study is more appropriate for the study of medical tourism supply chains, as each chain is unique depending on each medical tourism destination (Heung et al., 2010).

Data collection

The steps in data collection were as follows:

1. A thorough literature review was conducted on the Thai medical tourism industry, medical tourism supply chains, and IT adoption in those chains. Previous studies, news, and White Papers related to the Thai medical tourism industry were also collected at this stage. These documents detailed how the industry has been developed, and who was involved. In addition, a literature review of the medical tourism supply chain and IT adoption enabled the researcher to frame appropriate interview questions as shown in Table 1.

Table 1 Interview questions as derived from the research questions

Research question	Lists of interview questions	Reference
How are the key stakeholders in the Thai medical tourism supply chain related to one another in terms of collaboration and networking?	**Flow of services in the Thai medical tourism supply chain** - How does your company/organization cooperate or collaborate with other stakeholders in the medical tourism supply chain? - In your opinion, is there any other organization that you could collaborate with to enhance the effectiveness of the supply chain? Why don't you collaborate with them at the moment? - What are the difficulties in collaborating with other stakeholders in the supply chain? - In your opinion, what are the main overall obstacles to efficient collaboration in the supply chain, and how can these problems be solved?	Alberti, et al. (2014)
How does information flow along the Thai medical tourism supply chain and how can IT be used to facilitate the flow?	**Information flow in the Thai medical tourism supply chain** - What data and information do you usually exchange with other stakeholders in the supply chain? - What data and information are usually required by medical tourists? - What kinds of information are required for effective collaboration in the supply chain? - What information technology and information system do you use to facilitate data/information exchange with others in the supply chain?	Scaglione et al (2019) Moghavvemi et al. (2017)

2. Interviews were conducted with experts (listed in Table 2) in the tourism and health care industries. All interviews were recorded, transcribed and reconfirmed with the interviewees. Snowball technique was also applied to help identify other stakeholders in the industry and gain access to relevant persons and organizations or associations. This round of interviews allowed the researcher to explore the development and context

of the medical tourism industry in Thailand, as already collected in secondary data from the first step. These were then used to triangulate with the interview data in this step, in order to increase the credibility of the findings.

3. Interviews were conducted with stakeholders in the medical tourism industry (listed in Table 3) using the questions listed in Table 1 as a guideline to obtain data, such as what their key activities are in managing the supply chain, and what data and information are required for their key activities. The purpose of this stage was to gain a deeper understanding of current practices of supply chain management (especially collaboration in terms of service and information flow) in this industry. The interviewees were all at the management level. The researcher had purposely requested managers who have been involved in planning or proposing expansion to the medical tourism segment, or those who are already involved in providing services to medical tourists.

4. In parallel with Stage 3, current uses of IT by the key stakeholders are observed in their real settings, where access was granted.

5. Secondary data, such as related news and articles on websites, websites of the interviewed stakeholders, and minutes of meetings were collected. This was to triangulate data in order to increase validity. According to Carter et al. (2014), triangulation is a qualitative research strategy to test validity and reliability through the convergence of information from different sources.

Table 2 Position and organization of each expert interviewed in the first round

No.	Position	Organization
1	Vice President: Department of Business Performance Development, and Advisor of the Medical Tourism Cluster Development Project	Institute for Small and Medium Enterprises Development (ISMED)
2	Deputy Director of Financial Support Bureau	Office of Small and Medium Enterprises Promotion (OSMEP)
3	President	Thai Medical and Wellness Tourism Association (Thailand Medical Tourism Cluster)
4	President of the management board	A private hospital in Phuket

Table 3 Interviewees involved in the second round, categorized by types of business

Types of business	Total number of organizations
Institutions for collaboration (IFC)[*]	6
Medical service providers	25
Hotels	12
Travel agents	11

[*]Institutions for collaboration are, for example, Tourism authority of Thailand, OSMEP, ISMED

Data Analysis

Two main steps are involved, as follows:

1. Documentation of various contacts, interview scripts, other secondary data, and written documents. These were saved and listed. According to Schutt (2012), this is the first formal analytical step in qualitative research, because it provides a way of developing and outlining the analytic process and encourages ongoing conceptualizing and strategizing about the text.

2. Examining relationships and displaying data helps to discover themes and gain insights from the interview data. This research adopted thematic synthesis as the data analysis method. Thomas and Harden (2008) recommend three stages in thematic synthesis: the coding of text line-by-line, the development of descriptive themes, and the generation of analytical themes. This study has aimed to develop an understanding of the service and information flows within the Thai medical tourism supply chain. Explanations as to why the behavior of key stakeholders are sought in order to understand what really happened in each context. Therefore, the initial round of coding divided interview data into two main groups, namely service flow and information flow. Within each group, the data were coded into three descriptive themes for the supply chains; namely, characteristics, current practices, and problems/ challenges. Specific to the 'information flow' group, an additional descriptive theme was data or information exchanged within the supply chain. At this stage, two research assistants who had participated in the project since the beginning and the main researcher coded the interview data separately and then compared the results. Approximately 80-85% of the text was coded under the same descriptive theme, which implies coder reliability, according to Clarke and Braun (2006). Figure 2 shows the two groups of interview data and the descriptive themes.
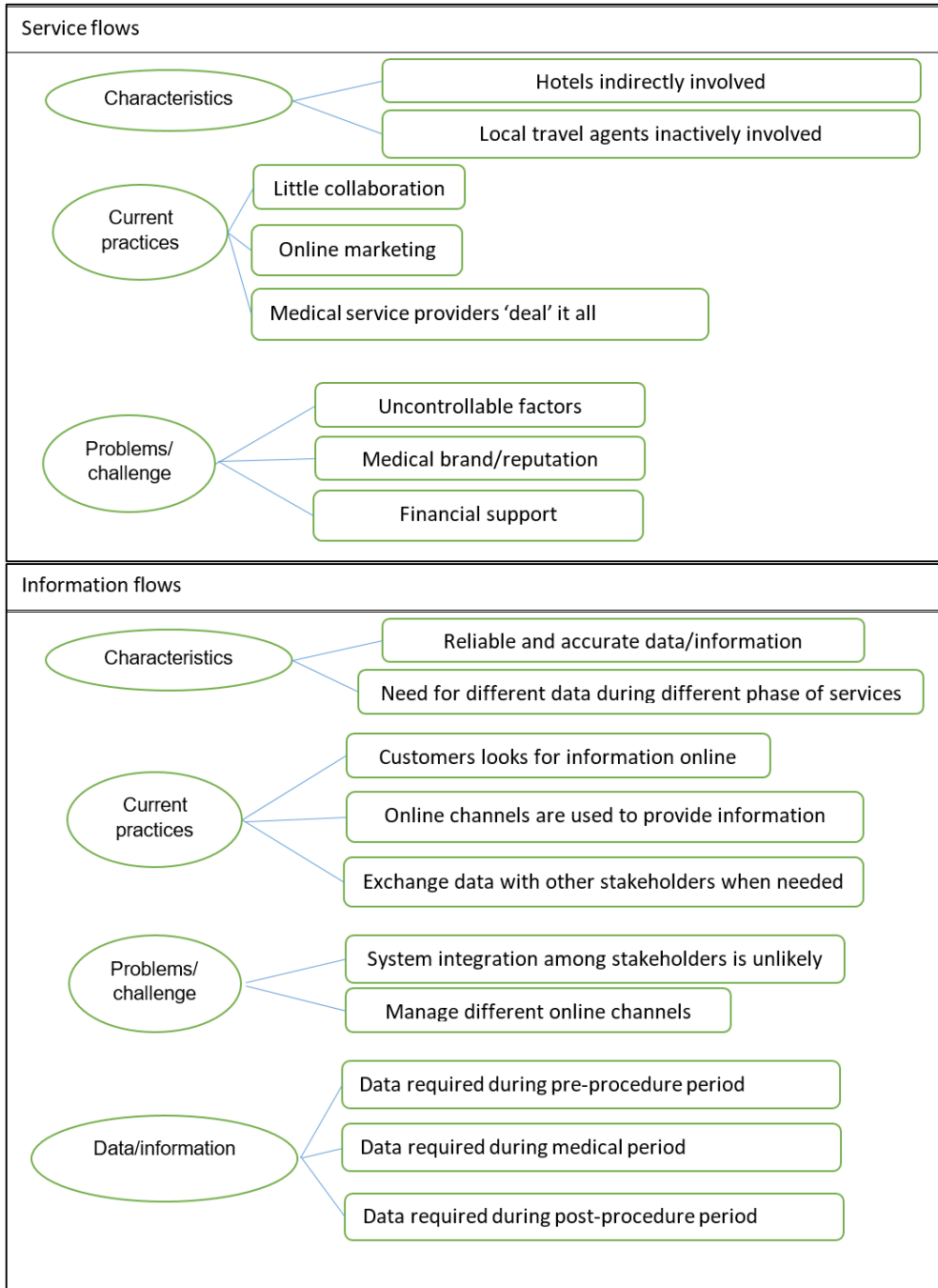
Service flows

Characteristics
- Hotels indirectly involved
- Local travel agents inactively involved

Current practices
- Little collaboration
- Online marketing
- Medical service providers 'deal' it all

Problems/ challenge
- Uncontrollable factors
- Medical brand/reputation
- Financial support

Information flows

Characteristics
- Reliable and accurate data/information
- Need for different data during different phase of services

Current practices
- Customers looks for information online
- Online channels are used to provide information
- Exchange data with other stakeholders when needed

Problems/ challenge
- System integration among stakeholders is unlikely
- Manage different online channels

Data/information
- Data required during pre-procedure period
- Data required during medical period
- Data required during post-procedure period

Figure 2 Two groups of interview data and the descriptive themes

Six analytical themes (three from service flow and three from information flow) were then derived from the descriptive themes shown in Figure 2. According to Thomas and Harden (2008), an analytical theme is a product of synthesis that directly addresses the concern of the study. In this case, that theme is to understand how stakeholders in the Thai medical tourism supply chain collaborate, how data and information flow along the chain and how IT can be used to facilitate information exchange along the chain.

Reliability of the study

The term "reliability" in qualitative study is clarified as "credibility, transferability, dependability, and confirmability" (Lincoln and Guba, 1985; Schwandt et al., 2007). The research attempted to achieve these four criteria for reliability in qualitative research in the following ways:

- "Credibility" is defined by Lincoln and Guba (1985) as the trustworthiness of the findings. The researcher adopted the triangulation method to cross-check data from multiple sources and thereby increase the trustworthiness of the data and findings.

- "Dependability" refers to the stability of findings over time (Bistch, 2005: 86). The researcher attempted to ensure dependability by having three researchers analyze the same data separately and then compare the resulting themes.

- "Transferability" refers to the degree to which the results of the research can be transferred to other contexts with other respondents (Bistch 2005). Transferability is increased as the researcher provides a detailed description of the enquiry and informants are selected purposively.

- "Confirmability" refers to the degree to which the results of an inquiry could be confirmed by other researchers. The researcher attempted to increase confirmability by having three independent researchers examine and confirm the results of each interview.

Findings

This section discusses research findings on how stakeholders in the Thai medical tourism supply chain collaborate, exchange information and use IT to support information exchange. The first subsection, *the Thai medical tourism supply chain,* discusses three main concerns related to collaboration among stakeholders in the supply chain in providing medical tourism services. The second subsection, *Information flow within the Thai medical tourism supply chain*, addresses another three main concerns about the use of IT and information exchange among stakeholders in the supply chain.

The Thai medical tourism supply chain

From the literature, stakeholders of the Thai medical tourism (MT) industry included hospitals, specialized clinics, accommodation providers, transportation providers, travel agents, spas, health and wellness centers, tourism-activities providers, and relevant associations. Literature on supply chains always encourages seamless integration and effective collaboration among stakeholders in each chain, as it helps increase competitive advantages for stakeholders. The findings from this study however show a rather different picture. First, tourism providers considered themselves supporting players in the supply chain, and some did not clearly distinguish between medical tourism and general tourism. The medical service providers appeared to be the central point of the service flow. Requests for both information and services were made to the medical service providers; then they forwarded or collaborated with other stakeholders in the supply chain, according to the specific request. Second, the stakeholders in the medical tourism supply chain in Thailand rarely collaborated with each other. Medical service providers usually had direct contacts with customers and helped them to arrange other tourism activities upon request. Third, while the medical service providers have been doing well and were able to penetrate the market by themselves, assistance from the government is still needed to manage the big picture of the whole industry.

Tourism providers considered themselves supporting players in the medical tourism supply chain

The attempt to identify key stakeholders of the Thai medical tourism supply chain in order to see how they collaborate has revealed that tourism providers considered themselves supporting players in the medical tourism supply chain. Therefore, they were not actively involved in providing medical tourism services. To be more specific, hotels did not see themselves as a key stakeholder in the supply chain. Rather, they considered themselves as obtaining indirect benefits from the medical tourism industry. Local travel agents were inactive in integrating and promoting medical tourism service as a package. These issues are supported by the following coding themes.

Local travel agents were not actively involved in providing medical tourism services. While agents (information aggregators) are important to the service-based industry, aggregators in Thailand appeared to be inactive. Major medical tourism agencies ranked at the top of search engine are foreign companies (see rankings in Appendix). The local travel agents interviewed in this study used to provide medical tourism services but stopped doing so. They no longer focus on offering medical tourism packages as they find it difficult or complex due to the following reasons.

"Customers usually contact their doctor and hospital directly after their first visit. Besides, hospitals these days usually have their own customer database and contact customers directly for follow-ups." (travel agency owner)

" Big private hospitals seek to expand and market to foreign customers by themselves and tend to contact with dedicated foreign agents, leaving almost no room for local travel agents especially small ones" (Assistant to Secretary General, Thailand Tourism Council)

" Medical tourism packages are very complex. Medical information has to be accurate, and to prepare such information in English is a challenge." (Managing Director, a travel agent)

Hotels did not see themselves as key stakeholders in providing MT services. From the perspective of hotels, they should focus on providing good-quality accommodation and services (e.g. catering and meeting rooms) to any tourists. Hotel infrastructures were not designed to facilitate patients. The height of beds, the design of bathrooms, and foods, for example, were not prepared for patients but for general tourists, and it was uneconomical to renovate for a very specific purpose such as MT. As a managing director of one of the interviewed hotels said:

"We do not market specifically to medical tourists; these are too small a target and not our regular customers. We would rather focus on the larger market, which is general tourists. Anyway, I don't think the medical tourists are different from the other tourists, when talking about hotels." (Managing Director, hotel on Samui Island)

A similar opinion was given by the manager of another hotel.

"We are a hotel. We provide accommodations. If medical tourists want to stay at our hotels, we are happy. If there are more of them and they stay longer, we are also happy. But we still have to focus on our main business which is a hotel. We promote our hotel but cannot help promote any medical services; we don't have that knowledge. We just supply the rooms." (Marketing manager, a hotel in Phuket)

Loose ties, little collaboration within the medical tourism supply chain

The interview data showed that the Thai medical tourism supply chain is different from the theory. The stakeholders did not collaborate as suppliers, manufacturers/producers or as agents. They were, however, loosely connected through the mechanism of association. and contacted each other as requested by customers, or when required by relevant associations or government units. Relevant associations were, for example, the Thai Medical Tourism Association, the Thai Spa Operators Association, or the Thai Hotels Association.

The interview sessions with the Thai Medical Tourism Association and the Thai Spa Operators Association also revealed loose ties among their members. Most members are

small or medium-sized enterprises which usually need help with marketing. Product bundling was attempted but usually only among very active top members. Members who were less active were usually neglected.

> "*Members who actively participated in association's meetings tended to know each other well. Collaboration, therefore, occurred at this level first. For example, they bundled their products and offered promotions together at some international trade fairs.*" (representative of the Thai Spa Operators Association)

> "*We are still trying to pull in more active members. Definitely, we want to go together as an association so the perceived image of our services will be stronger. The association is trying to facilitate the business matching among our members, but only few active ones were ready to do so.*" (representative of the Thai Medical Tourism Association)

Apart from the loose ties seen in the medical tourism chain, the interview data shows that medical service providers seem to be able to manage. They do marketing by themselves, using online channels. They also arrange bookings with hotels and transportation providers, and sometimes even recommend tourism activities for their customers. Interviews with dental clinics and medical travel agents showed that big clinics helped their customers by arranging transportation and accommodation. Collaboration in providing medical service and tourism service as a bundle was rarely seen. Hotels, transportation providers and other tourism activity providers are more likely to take a supportive or supplementary role.

> "Clinics and hospitals these days do it all. They contact hotels and transportation providers for patients' families." (owner of a travel agency)

> "Here we can also book a hotel and transportation for our patients if they request, without any extra charge. This is to facilitate our foreign patients." (Marketing manager, a dental clinic)

In summary, the supply chain of the Thai MT industry is different from the theory. The theory starts that all stakeholders should be working together to provide the services. In practice, the stakeholders work quite independently, and little attempt is made to combine the medical services with tourism services as a new product. Medical service providers arranged tourism services for customers upon request, as a supplement to their medical services.

Long-term policy, continuous support, and better macro-level conditions

Both facilitating units (e.g. OSMEP, Thai medical tourism and wellness associations) and medical service providers agree that government could and should support the industry. Financial support and a long-term policy are mentioned by the facilitating units. Medical

service providers already are promoting the industry themselves; but facilitating macro-level conditions such as political stability, safety, and reliable transportation infrastructure are all things that have to be developed by the government.

Currently, there has been a lack of continuous financial support. Interviews with respondents from the Office of Small and Medium Enterprise Promotion (OSMEP) and the Institute of Small and Medium Enterprise Development (ISMED) revealed that both units used to receive a budget from the government to develop and promote the MT industry. However, the budgets unstable, depending on each year's policy rather than a long-term policy that would support better and continuous development.

> *"From the previous government, budgets were allocated for us to help promote the medical tourism industry. Currently we get no more budget on this, and therefore our plans are paused." (Deputy Director of Financial Support Bureau, OSMEP)*

> *"We have got some budgets allocations but we had to propose our projects to the Ministry. It depends on the current policy too. In some years, the government shifted its focus to other sectors. Like this year, we have got only a small budget, so we are not able to do much, and some of our projects have had to be postponed" (Expert SMEs Business Consulting Service Management, ISMED)*

The advisor of the Thai Medical and Wellness tourism association similarly commented on the discontinuous budgets and policy from the government:

> *"We were allocated a budget from the government through OSMEP. The main goal of that budget was to fund the study of, and the attempt to build a strong ground for the medical tourism industry. So at that time we tried to set up a cluster. We asked hospitals, clinics, specialized clinics, Thai-traditional medical services providers, accommodation providers, transportation providers, interpreters, spa, health and wellness service providers, travel agencies, and insurance companies to join us. After recruiting members, we planned for other activities, but the budget was discontinued. Later, we were told that the focus had been changed to be AEC related issues, so our attempt to engage all stakeholders was temporarily paused."*

In addition to financial support, macro-level factors that could benefit the medical tourism industry were pointed out. Some examples are:

> *"Big pictures issues like good transportation infrastructure and political stability are not in our control. But they are important to medical tourists when choosing medical tourism destinations" (a branch manager, a dental clinic)*

> *"Visas for a longer stay are needed. They would allow medical tourists to stay longer and spend more. This is important." (Advisor to the management board, Thai Medical and Wellness Tourism Association)*

Information flow within the Thai medical tourism supply chain

This section discusses three main findings concerning data and information exchange along the Thai medical tourism supply chain. First, data and information needed by stakeholders in the supply chain varies in each phase of medical services. The different data/information are listed, and important qualities of data are discussed. Second, the use of IT by stakeholders in the supply chain is outlined, and it shows that medical service providers utilize several online channels which they manage by themselves. Third, system integration is considered unlikely or unnecessary by stakeholders in the supply chain. This is consistent with the concern pointed out in the service flow section, that stakeholders do not cooperate and integrate tightly; rather, they only collaborate when needed.

Data and information needed by stakeholders in the Thai medical tourism industry

Different data are required during different phases of service. Using the medical service period as a criterion to identify data usage, figure 2 shows that the premedical service period required a lot of information. This is because alternatives were studied and choices were made during this period. Information required by potential medical tourists included:

- Information concerning medical services, procedures, alternatives, prices, and payment options (including insurance policy)
- Reviews or comments from previous customers
- Information about Thailand, tourist visas and related laws and regulations concerning a temporary stay in the country
- Information concerning accommodations, transportations (within the country) and other related services

In the pre-medical service period, medical service providers also required information concerning previous related medical records and personal medical information such as allergy history. This information is important for treatment planning. If customers make contact through an agent, the agent will need to forward the information to the medical service providers.

Information exchange was limited during the procedure as everything had to be prepared, communicated, and understood by both the providers and the customers. The post-medical service period, however, showed a sharp rise in demand for information from the customers/patients: information concerning after-care procedures, what to eat and what not to eat, things to avoid, things that must be done, etc. Information about related activities, especially tourism and relaxation, were usually requested by the customers and their families. In addition, information about extending their stay and accommodation for a longer period will be needed if the patients need more time to recuperate. Accommodation

providers may require specific information concerning after-care requirements, such as height of bed and suggested types of food. Figure 3 summarizes required information during each period.
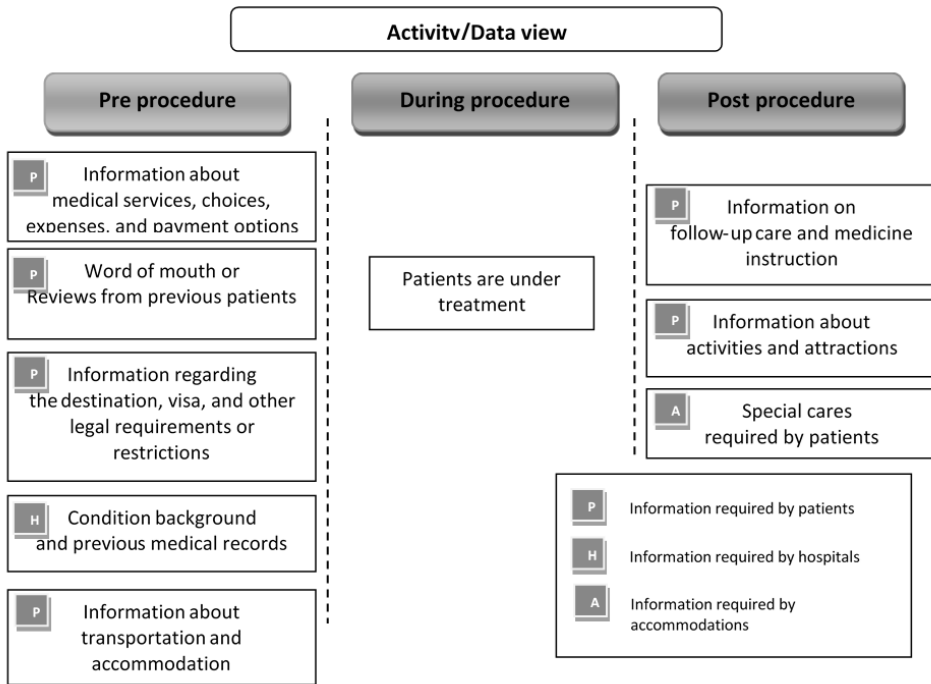

Figure 3 Information required by patients in each medical service period

There are clear needs for high-quality data/ information especially concerning medical records and medical procedures. This is supported by the following interview data.

> *"Information about medical procedures, you know, that have to be followed, things that we have to be careful about, expected results, side effects, etc This information has to be detailed and correct. Sometimes we even need to find relevant research that confirms the information." (Managing Director, a travel agency)*

> *"The more complicated the (dental) procedures, the more detailed and reliable must be the information the customers will request. They want to be sure that they can trust us… that we really know what we are doing. So, it is important that we provided detailed and valid information" (Marketing manager, a dental clinic)*

However, exchanging data with other stakeholders in the supply chain was done only when necessary. The interviewees did not consider collaboration and information exchange to be regular activities.

"We only exchange upon customers' request. That's why I say we see no need to integrate systems." (Marketing manager, a dental clinic)

"It (exchanging information) is not something we do everyday. It's not like manufacturers and retailers exchanging information everyday." (A hospital)

"Going out to a trade show together, medical service providers and tourism providers need to talk to each other: What services do they offer? What can be bundled? What are the key strengths of each other? etc. But that is still on a one-off basis. We would like to encourage a long-term collaboration" (representative of the Thai Medical and Wellness Tourism Association)

The use of Information Technology in the medical tourism industry

In this study, the information technologies that were widely adopted by medical tourism enterprises were websites and email, utilized mainly for marketing purposes. YouTube was an effective channel to provide extra information and to promote credentials of the providers (in this case the hospitals and clinics). Since credibility is a key in selecting providers, some medical service providers benefited from using YouTube as a channel to showcase their expertise. Email was also used as a regular communication channel between the providers and their customers. Websites of the Thai medical service providers appeared to be focusing on providing information; not many of them provided interactive tools for online enquiries.

The medical service providers unanimously agreed that online channels are important because medical tourists looking for information usually start online. Information about medical services is thus provided in English on the medical service providers' websites. Additional information on accommodation and transportation can be requested from the hospitals or clinics, which usually have dedicated staff to provide additional information and cooperate with hotels, relevant service providers, or their partnered travel agents. In some cases they can find deals for the customers.

"If you want to look for somewhere to travel and maybe get a dental check-up, do you know a nice place for travel which has cheap and decent quality of dental services? Where will you look for information? Of course, you will start with the internet, right? Yes, websites can be very important, and most customers do start online." (Marketing Manager, a dental clinic)

"Websites are the first place to start when looking for information. So we tried to develop a web portal which lists all medical service providers' information and it also provides reliable information about medical services as well as tourism services in Thailand." (Expert for SME Business Consulting Service Management, ISMED)

System integration among stakeholders is unlikely

Although both medical service providers and tourism providers utilize information technologies quite a lot, they see no need to integrate their systems with that of other partners or stakeholders, because it is so seldom that they collaborate and exchange information. This reveals totally different pictures between practice and theory.

> *"I don't see the need to integrate. Integrating with other dental clinics or hospitals to exchange patients' records is impossible. Integrating with hotels is not necessary: if we want to book a room for our customers, we make a phone call, send an email or book it on the hotel website. That's much easier."* *(Marketing Manager, a dental clinic)*

> *"Medical records actually belong to the customers. If they want their data to be transferred to other hospitals or providers, that should happen. But that is not the case in practice. Hodespitals do not easily give out patient records. So a system of integration still seems far-away."* *(a hospital in Phuket)*

Conclusions

The importance of the medical tourism industry to the economy of Thailand and the clear lack of a study on the industry from the perspective of its supply chain demonstrated the need for this study. Supply chain management is an important approach to the development of sustainable tourism destinations and competitive advantages for stakeholders in the chain. Therefore, this study has investigated the Thai medical tourism supply chain to see how stakeholders collaborate and how information flows along the supply chain. In other words, it focuses on the service and information flows of the Thai medical tourism supply chain.

The study is exploratory in nature. It attempts to understand current practices of medical tourism service providers in Thailand, and to paint a clear picture of the Thai medical tourism context. A qualitative approach was used, and interviews using semi-structured questions were used as the main data collection method. Thematic analysis was the main data analysis technique, and six main analytical themes were synthesized. In the service flow of the supply chain, there was a loose tie among the stakeholders. They were loosely connected through associations such as the Thai Medical and Wellness Tourism Association and the Thai Hotel Association.Little collaboration took place to offer medical tourism services as a single package. Instead, the stakeholders worked quite independently, and hotels and travel agents considered themselves to be playing only a supporting role in providing medical tourism services. Concerning the information flow of the supply chain, different data are required in different periods of medical services. The pre-procedure period requires a lot of information, and the potential medical tourists usually had to seek this out by themselves. Information exchange between medical service providers and tourism service providers was limited, and there was little collaboration among them. Consequently, system integration

between partners in the supply chain is unlikely to develop, as there is no clear need. The findings provide both theoretical and practical contributions, as follows.

Theoretical contribution

This study shows a unique characteristic of the Thai medical tourism supply chain and how IT can be used to facilitate the supply chain and promote the industry. The study of activities of each stakeholder shows that the medical tourism supply chain is different from a typical manufacturing supply chain: the service does not flow in one direction (e.g. from medical service providers to tourism providers to travel agents) like it does in a manufacturing supply chain. In practice, there were many associations that worked separately with various directions and no collaboration. Similarly, the medical service providers and tourism service providers worked quite independently and made little effort to integrate their products and services. Lee and Fernando (2015) also found that there was a lack of collaboration and integration in the medical tourism supply chain despite the important fact that firms cannot act as independent entities in competition with other firms. Therefore, supply chain management may not be an appropriate approach in enhancing the industry's competitiveness.

Practical contribution

If the supply chain management approach does not fit the Thai medical tourism context, it is perhaps better to focus on quality, availability, and efficiency of medical services. The medical service providers can be a key success driver of the whole industry, while the tourism service providers provide supplementary services and the government builds a facilitating environment in terms of policy and infrastructure. A long-stay visa for medical tourists, convenient and reliable transportation, safety, and stable, continuous policy are examples of government policies helpful to the MT industry.

Additionally, the inactive role of travel agents found in this study highlights the gaps within the industry. While both medical service providers and tourism service providers have to focus on their core businesses, an intermediary like a travel agent or a medical tourism facilitator can play an important role in integrating the two independent sets of services together by becoming a one-stop hub for medical tourists. This would simply be good business.

In terms of Information Technologies, the study shows that the MT service providers use IT mainly to promote their businesses by providing information to potential customers. Websites, email and YouTube were used to publish information. However, most information was published by providers on their own websites. Only a few providers took advantage of Web 2.0 and social media concepts to build a community where customers can share their experiences. Since customers these days rely more on electronic word-of-mouth, which helps create customer loyalty (Yoo et al. 2013), providers should explore and take more advantage

of Web 2.0 applications. Yeoh et al. (2013) also found that medical tourists are highly influenced by friends, family, relatives, and a doctor's referral; thus, online word-of-mouth is considered a potential marketing tool for medical tourism and should be better utilized.

Limitations and future research

Despite a careful research design and data analysis, these research findings should be applied with caution. The findings may not be applicable in different contexts. For example, in the context where medical tourism facilitators or travel agents play a more active role, the service flow in the supply chain may be totally different. The set of data and information required by customers was listed from the perspective of medical tourism providers. Therefore, it might be incomplete and require further study from the customers' perspective. Generalizability, however, is not a goal of this study, which seeks only to explain current conditions of the Thai medical tourism industry regarding its service and information flows. Applying the findings of this study to other contexts should only be done with extreme care.

Future research may include perceptions of medical tourists, especially on the efficiency of the medical tourism service flow. This can help to improve the medical tourism industry as a whole. In addition, research on how to build trust among the stakeholders may be helpful as the stakeholders will share and collaborate more when they trust each other.

Acknowledgements

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Appendix

Table 1 Search result from Google using 'medical tourism Thailand' as a search keyword

Keyword: Medical Tourism Thailand		
Search results (As ranked by Google)	**Company**	**URL**
Medical Tourism in Thailand	MyMEDHoliday.com (Foreign company)	www.mymedholiday.com/country/thailand
Medical Tourism Thailand	Tourism Authority of Thailand	www.tourismthailand.org/See-and-Do/Activities/Medical-Tourism
Thailand Medical Tourism, Guide to Hospitals, Plastic Surgery and Wellness Center	Red Mango (Foreign company)	www.thaimedtour.com
Medical tourism - Wikipedia	wikipedia	https://en.wikipedia.org/wiki/Medical_tourism
Medical tourists flock to Thailand Spurring Post-Coup Economy	Bloomberg	http://www.bloomberg.com/news/articles/2014-11-18/medical-tourists-flock-to-thailand-spurring-post-coup-economy
The rise of medical tourism in Bangkok	BBC	
CNN Documentary Shows Medical Tourism in Thailand is a Serious Business	CNN	http://skift.com/2015/01/30/cnn-documentary-shows-medical-tourism-in-thailand-is-a-serious-business/
Bumrungrad International Hospital	Bumrungrad	https://www.bumrungrad.com/
The effects of medical tourism: Thailand's	WHO	http://www.who.int/bulletin/volumes/89/5/09-072249/en/

Keyword: Medical Tourism Thailand		
Search results (As ranked by Google)	**Company**	**URL**
experience		
Medical Tourism Thailand - Medical Tourism Corporation	MedicalTourismCo, LLC (an international medical travel company based in the US)	http://www.medicaltourismco. com/medical-tourism-in-thailand/

Table 2 Search result from Google using 'surgery Thailand' as a search keyword

Keyword: Surgery Thailand		
Search result (As ranked by Google)	**Company**	**URL**
Plastic Surgery Thailand	Destination beauty - an agency	www.destinationbeauty.com/Plastic
Thailand Cosmetic Surgery - beautymed.com.au	Beauty Med (Thailand) Co., Ltd - an agency which has an office in Thailand and Australia	www.beautymed.com.au
Plastic surgery Thailand - WhatClinic.com	WhatClinic.com (Dublin)	www.whatclinic.com/cosmetic-plastic-surgery/thailand
Plastic Surgery Thailand - PlasticSurgeryThailand.com	Beauty Med (Thailand) Co., Ltd - an agency which has an office in Thailand and Australia	www.plasticsurgerythailand.com

Keyword: Surgery Thailand		
Search result (As ranked by Google)	**Company**	**URL**
Plastic-Cosmetic Surgery | Bumrungrad Hosptial	Bumrungrad hospital	www.bumrungrad.com/en/plastic-surgery-cosmetic-center-bangkok-thailand
The dark side of cosmetic surgery in Thailand - BBC	BBC News	http://www.bbc.com/news/business-31433890
Cosmetic Plastic Surgery Bangkok, Thailand by Naravee Aesthetic Center	Naravee Hospital and Naravee Clinic	http://www.naraveesurgery.com/

Table 3 Search result from Google using 'medical tourism agency Thailand' as a search keyword

Keyword: Medical Tourism Agency Thailand		
Search result (As ranked by Google)	**Company**	**URL**
Medical Tourism Agencies|Thailand Medical Tourism	Tourism Authority of Thailand	www.thailandmedtourism.com
Thailand Medical Tourism, Guide to Hospitals, Plastic Surgery and Wellness Center	Red Mango (foreign company)	www.thaimedtour.com
Medical Tourism Agencies	myMEDholiday	http://www.mymedholiday.com/providers/67/medical-tourism-agencies
Medical Tourism in Thailand	-	www.thaiwebsites.com/medicaltourism.asp

Keyword: Medical Tourism Agency Thailand		
Search result (As ranked by Google)	**Company**	**URL**
Medical tourism/ health tourism Directory of medical tourism agencies	International Medical Travel Journal	http://www.imtj.com/marketplace/medical-tourism-agencies/directory/
Medical Tourism Thailand - Surgery Abroad Asia	INTERNATIONAL MEDICAL HEALTH SOLUTIONS CO.,LTD	http://www.intermedisol.com/
Medical Tourism Thailand	Orchid Heart (Intermediary focus on Asia and Souteast Asia)	www.orchidheart.com
Medical Tourism - Tourism Authority of Thailand	Tourism Authority of Thailand	www.tourismthailand.org
Thailand Medical Travel & Tourism	The link can no longer be accessed	www.thaimedtraveltourism.com
Medical Tourism - Medical Travel Company	MedRetreat	http://www.medretreat.com/