

## **THE DEVELOPMENT OF CUSTOMER JOURNEY ON PATIENT SERVICE DESIGN: A CASE STUDY IN HEALTHCARE BUSINESS IN THAILAND**

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### **Abstract**

The purpose of this study is to explore the patient service touchpoints in the healthcare business. This study adopted a qualitative approach for the research process. The patient service touchpoints are perceived as the influencing stage of patient satisfaction during the patient journey. The documentation research, semi-structured interview, and participant observation were conducted to collect data prior to the content analysis. The study was conducted with thirty informants from healthcare professional groups in Thailand. They were doctors, nurses, and supported staff sharing their insights for the current study. This study focuses only on the patient journey of Out-Patient-Department (OPD). The results of the interviews indicated three main periods of the patient journey. There were pre-medical service period, in-medical service period, and post-medical service period. In addition, from the result of the interviews, it also indicated ten critical patients' service touchpoints under three main periods of the patient journey; four touchpoints found in the pre-medical service period, three touchpoints found in the in-medical service period, and three touchpoints found in post-medical service period. The discussions, conclusions and implications were also provided.

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**Keywords:** service design, service touchpoints, patient journey, healthcare business

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## Research background

Thailand is now in a transition to totally become an aging society. The organization is stated that any countries with more than ten percent of citizens who are sixty years old and above from the total number of citizens are considered to be turning into an aging society (The Siam Commercial Bank Public Company Limited, 2021). In addition, the country ultimately becomes an aging society when the ratio of citizens who are sixty years old and above has risen to twenty percent. In the near future, the percentage of citizens who are sixty years old and above will exceed twenty percent of the overall citizens. The potential situation results from the technology and medical development that allows longer lives to citizens while the birth rate falls gradually (Ketsara, 2019). Therefore, the healthcare and wellness industry should be prepared for an aging society, especially in Thailand.

The Thai government would continue to support the healthcare industry under a strategic plan to develop Thailand into a global medical and wellness center hub by 2026 (Krungsri Research, 2021). Nevertheless, since 2003, successive Thai governments have pursued the goal of establishing Thailand as the regional medical hub. Then, this has been a major driver of the growth of the private healthcare sector and the development of the medical tourism industry. There have been the increasing development in large private sector hospitals, specialist hospitals, and medical centers, specialist diagnosis and treatment clinics, and care centers or care homes for the unwell and the elderly. These businesses continue to

grow at a healthy rate since the service providers are prepared to deliver high-quality care to the patients (Krungsri Research, 2021). In addition, to secure long-term growth and increase the market share, many hospitals have been investing more to expand their premises and commercial network. There were developing existing premises, building new hospitals and clinics in regional centers, tourist destinations, and border regions to meet demand from neighboring countries, or even buying shares in other profitable hospital groups.

Furthermore, several hospitals have formed partnerships with other healthcare service providers both domestically and abroad to expand their network to receive or refer patients or develop new specialist market segments. Besides, many companies are also generating additional income by developing new product lines such as pharmaceuticals and medical supplies, food supplements, cosmetics, and establishing beauty clinics and care homes for the elderly (Krungsri Research, 2021). Therefore, the rising interest in personal health and wellbeing is also a key driver of healthcare business growth.

However, service quality is also considered one of the most important factors in patient expectations. According to Rungroje (2019), service quality in healthcare is defined by customer perception. Healthcare businesses, both public and private sector, try to develop service quality and perception of the organization. Most of them would like to gain more competitive advantage from competitors and more patients satisfaction. This study was adopted the service design concept



into the patient satisfaction development in healthcare businesses. Service design is defined as the design that primarily considers all stakeholders' experience, not limited to service receivers and service providers. Service design is also taking stakeholders, relating along the whole service process into account. It is believed that a collaboration of stakeholders at every step will generate an effective service design (Lin, M., Li, F. Y., & Ji, Z., 2020; Lu, P., Liao, H. T., & Lei, J., 2020)

In addition, service design requires multidisciplinary concepts; hence, the definition of service design will not be explained by a single discipline (Stickdorn, Hormess, Lawrence & Schneider, 2018; Buchanan, 2001). The foundation of service design processes is developed from human-center design concept aiming to solve users' problems by utilizing research and design competency. Service design has been continuously developing, attempting to serve the best experience to all individuals within the processes, apart from consumers (Skooldio, 2021). There are various tools available for service design. Service design experts advise that it is not necessary to strictly follow tools usage guidelines since it will contrast with service design principles that promote variety of problem-solving and improving methods. Service designers are flexible in applying any tools to a project's purposes (Geke Van Dijk, Bas Raijmakers, & Luke Kelly, 2014; Lin, et al., 2020). Service design tools are customer journey maps, stakeholder mapping, personas, service blueprint, service safari, shadowing, contextual interview, mobile ethnography, expectation maps, idea generation, design scenarios, storyboards, Agile

development, service roleplay, customer lifecycle maps, and business model canvas (Geke, et al., 2014). Customer journey maps are popular tools for service design. Furthermore, customer journey maps demonstrate consumer decision-making processes, including prior being the customer and becoming a customer, which the result will be brought to create or develop service design concepts (Geke, et al., 2014; Lin, et al., 2020).

Consequently, this paper aimed to explore the patients' service touchpoints in the healthcare business. As the patients' service touchpoints are perceived as the influencing stage of patient satisfaction, this study was adopted customer journey maps as a service design tool to explore the patients' service touchpoints in the healthcare business in Thailand.

## Research objectives

This research aims to explore the patients' service touchpoints in the healthcare business in Thailand. This study adopted a qualitative approach for the research process. The patients' service touchpoints are perceived as the influencing stage of patient satisfaction during the patient journey. The documentation research, semi-structured interview, and participant observation were conducted to collect data prior to the content analysis. The study was conducted with 30 key informants from healthcare professional groups in Thailand. They were doctors, nurses, and supported staff. This study focuses only on the patient journey of Out-Patient-Department (OPD).



## Research questions

To achieve the objectives of this research, the following research question was developed to address this research study of the healthcare business in Thailand; “What are the patients’ service touchpoints that perceive as the influencing stage of patient satisfaction on the customer journey map?”

## Literature review

### Healthcare businesses in Thailand

According to an announcement of information on the number of health agencies from the policy and strategy division (Office of the permanent secretary ministry of public health, 2017), Thailand offers more than 38,512 properties in healthcare services, including thirty-five percent of state-funded public health centers, district public health offices, and community or general hospitals. At the same time, the remaining 65 percent were private businesses and ventures such as private clinics and hospitals. Under the size and range of medical services offered, 98.3 percent were classified as primary healthcare providers while others were secondary and tertiary healthcare providers. Although state hospitals serve the patient in Thailand, their capacity and service delivery to serve patients are limited in some contexts. This weakness of government healthcare providers would lead an opportunity for private healthcare providers to improve, typically emphasizing the speed and convenience of services and supporting middle-class customers who have

sufficient spending power to turn to private hospitals despite charging more than government hospitals for equivalent services (Krungsri Research, 2021). In addition, tax exemption and other government-supporting policies are core motivation factors of private hospital investment.

Furthermore, business expansion has been driven by rising demand from patients in neighboring countries, while health and wellness tourists have also been rising steadily. All factors have stimulated the investment of healthcare investors in a variety of platforms of business, such as some large and dynamic operators have engaged in mergers and acquisitions. In addition, some companies opened new hospitals in critical regional centers of Thailand, and bought into other private hospitals as investment and to extend their commercial networks. Moreover, the transformed businesses have increased their competitiveness and help them to target more niche markets also (Krungsri Research, 2021; The Siam Commercial Bank Public Company Limited, 2021). In addition, the Thai government also supports the industry included in promoting Thailand as an international healthcare hub; this main strategy is aligned with rising interest worldwide in medical tourism and helps to attract more foreign patients. From now to 2024, the Tourism Authority of Thailand (TAT) will promote the country as the medical and wellness resort of the world. This campaign will raise the interest in personal health and wellbeing, also prompting hospitals to venture into the wellness industry. Furthermore, the policy of designating Thailand’s medical industry and medical hub status is regarded as a new S-curve industry. The



government has offered a range of incentives, such as a tax exemption to attract overseas investors. It included setting up facilities for the research and development of medical innovation and pharmaceutical products and services. This supported policy helps private hospitals cut operation costs while increasing competitiveness (Krungsri Research, 2021).

### **Service design concept**

According to Stickdorn, Hormess, Lawrence, and Schneider (2018) explains that the term “service design” is defined as the design that primarily considers all stakeholders' experience, which is not limited to service receivers and service providers. Service design is also taking stakeholders relating along the whole service process into account. It is believed that a collaboration of stakeholders at every step will generate an effective service design. Collaboration can bring pleasure to all, for example, producers, suppliers, distributors, and local people. In addition, service design is interdisciplinary which combining different methods and tools. This new method or concept differs from the former, focusing on only one method or tool from a particular discipline. Service design is progressively developed; therefore, a common definition or clear explanation has not been available. To provide a single definition will limit the evolution and development of service design concepts and ideas that are gradually growing throughout time (Stickdorn, et al., 2018). Buchanan, R., (2001) agreed that to settle service design definition into a specific field is obsolete and unacceptable since it does not conform to multidisciplinary concepts of

service design. Therefore, service design requires multidisciplinary concepts; hence, the definition of service design will not be explained by a single discipline and the development of service design is related to several fields for different purposes (Buchanan, R., 2001; Lin, et al., 2020; Stickdorn, et al., 2018).

As Thailand Creative and Design Center explained (TCDC, 2015), service is appended to a direction of organization development regarding organizational context. Development of service design has begun with the need to respond and to satisfy customer's desires. It includes, first, ‘*Service Marketing*’, which it focuses on marketing for service businesses. Then, ‘*Service Engineering*’ attempts to provide engineering construction to customers. In addition, ‘*Service Management*’ mainly aims at organization management. Next, ‘*Service Science*’ is innovation development to establish a new service form, increasing potential competition. Finally, ‘*Service Design*’ is a combination of service design for an organization developing direction which it concerns to all stakeholders, i.e., staff or service providers, customers or service receivers, and other individuals or units relating to service processes (TCDC, 2014). From all definitions mentioned, whether it is academic approach or agency approach, it concludes that service design is an integration of interdisciplinary aiming to solve the problems, to develop, to improve, and to create innovation by adding service value to the user as well as concerning to all people throughout the processes. The users also desire this service while it contributes efficiency and effectiveness to either firm or service designer.



## Service design processes

The basis of service design processes rises from human-centered design concept aiming to solve users' problems by utilizing research and design competency. The service design procedures are similar to design thinking (Skooldio, 2021). Service design has been continuously developing, attempting to serve the best experience to all individuals within the processes, apart from consumers. Thinking steps consist of the followings. Firstly, it is about understanding users, consumers, and related stakeholders (Empathize). Secondly, problem must be clearly defined and identify what should be done to solve the problem (Define). Thirdly, there is brainstorming to discover the methods to solve an existing problem (Ideate). Fourthly, it tests the prototype of problem-solving methods founded in the previous stage (Prototype), such as solving plan, simulation situation, model prototype, service standard blueprint. Finally, it is accurate situation testing and evaluating whether the prototype is effective and can solve an existing problem in a real situation. It will be developed to be more potential (Skooldio, 2021). Because there is no general definition of service design, Stickdorn and Schneider (2014) provided five essential principles. First, *user-centered* service design should transfer experience regarding consumer perception. It should not be present only from the perspective of the service provider or designer. The second is *co-creation*. A co-creation of stakeholders through the entire process enables various viewpoints reflection for solving the problems. Third, *sequencing*, well design service will reveal the causes and

effects of the performance to stakeholders at every step sequentially; therefore, everyone will realize the relationship of causes and effects of service design in the same direction. Fourth, *evidence*, the service designer must present an intangible service through the tangible physical product to create a touchable feeling even though it is untouchable. The last principle is *a holistic viewpoint*. Service designer has been suggested not to consider only one part of a specific service process but rather to concern the whole environment relating to service design aiming to the highest effectiveness (Stickdorn, M. S., & Schneider, J. 2014).

Even though service design has employed a design thinking concept for the designation, service design processes have been adapted for the appropriateness of the designing processes. TCDC (2014) explains that service design processes involve three steps; they are 1) Exploration, 2) Creation, and 3) Reflection and Implementation. TCDC (2014) further explores the step of surveying and collecting insightful data by applying ethnography research to identify the needs of users, consumers, and stakeholders in each process. Surveying and collecting data reveal gaps or opportunities for a suitable service design to a unique event or context. This agreed with the definition provided by Dusit Thani College (2020) that exploration is collecting data through observation where the data will be analyzed to identify the problems affecting consumer's behavior in service processes. Collecting data brings crucial information to establish service design. The next step is the creation of a service concept which is the result of surveying



and collecting data. It promotes co-creation among different service providers who are called to join in service design processes to add value to product and service (TCDC, 2014). Similarly, Dusit Thani College (2020) states that creating a service design concept is the outcome gained from survey and data collection. This stage focuses on designing a unique product or improving brand personality and designing a consumer experience that connects touchpoints between service providers and receivers throughout the journey: pre-, during, and post-service. The last process is implementation. The outcomes of the previous step will be brought to create a prototype and to study feasibility. Various kinds of prototypes can be created, such as diagrams, service models, simulation situations. The prototype will be tested for the effectiveness of each concept. After the test, the opinions of all stakeholders are welcomed for improvement. The test will be done repeatedly so that the most suitable concept meets the service design purpose as well as the requirement identified at the beginning. Consequently, a selected concept will be used, serving convenience and satisfaction to stakeholders entirely (Dusit Thani College, 2020)

TCDC (2015) describes that firm can be accomplished service design through different methods depending on the project type, purposes, and service designers of the firm. The designers can initiate working processes based on creative thinking principles and thinking categories. *Divergent thinking* refers to thinking about the new matter or examining The feasibility of existing approaches that might be used differently. *Convergent thinking* is analyzing

thinking for selection and decision process where all ideas will be accumulated to solve the problem directly or be summarized unambiguously. Notably, knowledge, expertise, reason, and logic are drawn to make the best decision. Service designers are suggested to add flexibility and variety to service design processes depending on context characters, duration, and existing resources. The feasibility of creative thinking processes variety accounts as one of the creative thinking processes. Thinking processes employed by TCDC have been developed from Double Diamond Model, which The British Design Council first initiated in 2005 (cited in TCDC, 2015). The model aims to explain attitudes and work processes that combine creative thinking and design process. Double Diamond Model is a mixture of four procedures which are 1) discover; gathering rich and adequate data for design processes, 2) define; analyzing and summarizing important issues, 3) develop; brainstorming all stakeholders to produce feasible concepts for solving, developing, and improving the problems as well as for meeting service design requirements, and 4) deliver; combining various ideas to create the best service design for the market (TCDC, 2015).

Moreover, Double Diamond Model focuses on three diamond shape alignment assisting the efficiency and effectiveness of service design. The first connector is *initiate*, referring to an establishment of the project's vision strategy. Service designers discuss with all shareholders to analyze trends, competitors, advantages of the firm, and other related issues to set goals and roles of the service design project to the firm or target group. The second connector is



*brief*, describing a summary of all data gathered from two steps within the first diamond. It clarifies usage needs of project and service design developing direction such as problem, goal, plan, and duration for designing. The last is *launch* referring to the last connector after the second diamond in the model, including commercial benefit as well. This process also means examining and improving possible defects that might occur during usage of the service, targeting the highest efficiency and effectiveness (TCDC, 2015).

### Service design tools

There are various tools available for service design. Service design experts advise combining different tools appropriate to design context and purposes, and the outcomes will be different in each project. It is not necessary to strictly follow tools usage guidelines since it will contrast with service design principles that promote a variety of problem-solving and improving methods. Service designers are flexible in applying any tools to a project's purposes (Geke, et al., 2014). Service design tools are stakeholder mapping, personas, customer journey maps, service blueprint, service safari, shadowing, contextual interview, mobile ethnography, expectation maps, idea generation, design scenarios, storyboards, Agile development, service roleplay, customer lifecycle maps, and business model canvas (TCDC, 2015; Geke, et al., 2014).

Even if there are various tools mentioned above, this section illustrates preferable tools. To begin with *stakeholder mapping*, this is to demonstrate the whole

picture of stakeholders throughout service design processes. It will show the relationship of each unit and direct and indirect impacts to identify the degree of involvement of each stakeholder (TCDC, 2015; Geke, et al., 2014). Another is *personas*. This tool assists more understanding to target users which the personas will represent actual users holding unique personalities, i. e. , behaviors, habits, interests, expectations, and problems. Service designers will gain different characters from the personas for creating service system concepts that directly reference the behavior and needs of different target users (TCDC, 2015; Geke, et al., 2014). In addition, *customer journey maps* are favorable. This offers the better understanding to consumer's behavior, viewpoints, and feeling that experiencing through touchpoint among service providers, service receivers, and an entire stakeholder. Customer journey maps demonstrate consumer decision-making processes, including prior being the customer and becoming a customer, which the result will be brought to create or to develop service design concepts (TCDC, 2015; Geke, et al., 2014). The last is *the service blueprint*. Service blueprint gains much preferable by service designers as it illustrates a holistic picture of the working system with specific details of each service unit, including front of the house, and back of the house, such as information technology system and human resource management system. Customer journey maps show reflections in a holistic picture at every service period since the details of pre-service, during service, and post-service are required (TCDC, 2015; Geke, et al., 2014).





## Research methodology and data collection scope

This study was considered qualitative research that used an in-depth interview technique. The data collection of research began with semi-structured interviews. In this step, a qualitative approach was used to obtain essential information and understanding the actual context of the patient journey in the healthcare business. Purposive and snowball sampling was initially used to identify key informants in the healthcare business in Thailand. There were many sampling techniques which are based on non-probability samplings, such as purposive, convenience, quota, and snowball sampling techniques (Neuman, 2006). However, this study employed purposive sampling and snowball sampling technique as it was the most suitable tool matching the research's aim and target population. While purposive sampling implied to the technique that researcher purposively selects key informant that fits with the particular criteria of the study, snowball sampling is the technique that starts with a small group of key informants then extends the sample size through referrals based on the initial selected key informants (Neuman, 2006; Yin, 2013).

The interview was conducted with thirty participants from healthcare professionals group in Thailand. They were doctors, nurses, and supported staff as shown in Table 1. Consequently, colleagues, acquaintances, and friends

could be referred to in these techniques. The appropriate sample size for an in-depth interview was around fifteen to twenty-five informants or until the data reached the saturation point (Chareanporn, T., Mingmalairaks, P., & Kumsuprom, S., 2020; Riley, 1995). Furthermore, Patton (2002) affirmed that there were no specific rules for deciding the sample size if the size could provide significant insights into research issues. In general, the sample size was often decided by resource constraints which depend on the cooperation of research informants or even their effort and contribution to the researcher. Also, a number of the chosen participants were manageable in terms of time frame and resources available. The target respondents were selected on the assumption that they willingly accepted to be interviewed. Each interview was conducted around one hour on average. There was an examining case by comparing the case classified by themes with multiple cases within cross-case analysis (Creswell & Clark, 2011; Edmonds & Kennedy, 2017). Then, the data analysis was done by analyzing each interview from observation notes and grouping the issues found by classifying them into different themes. Furthermore, the data analysis took the form of thematic analysis by using the constant comparative method to identify and refine new categories. The validity of the data was assured by comparing statements from the interviewees in healthcare businesses with multiple data sources—nevertheless, this study scope only on the patient journey of Out-Patient-Department (OPD).

**Table1** Participants list from healthcare professionals group

Code	Position/ Title	Age	Healthcare Org
HP1	Senior nurse	52	Public hospital
HP2	Doctor	60	Public hospital
HP3	Doctor	35	Public hospital
HP4	Nurse	27	Public hospital
HP5	Senior nurse / Assistant director	46	Public hospital
HP6	Pharmacist	34	Public hospital
HP7	Senior nurse / Claim center manager	40	Public hospital
HP8	Doctor / Assistant director	54	Public hospital
HP9	Telephone operator	28	Private hospital
HP10	Senior nurse	40	Private hospital
HP11	Cashier	25	Private hospital
HP12	Customer Service	30	Private healthcare business
HP13	Doctor / Management team	57	Private healthcare business
HP14	Senior nurse	48	Private healthcare business
HP15	Laboratory investigation (Lab test) officer	29	Private healthcare business
HP16	Doctor / Assistant director	57	Private hospital
HP17	Senior nurse / OPD manager	43	Private hospital
HP18	Cashier	33	Private hospital
HP19	Telephone operator	35	Private hospital
HP20	Senior nurse	50	Private hospital
HP21	Pharmacist	37	Private hospital
HP22	Doctor / Assistant director	61	Private hospital
HP23	Customer assistant	30	Private hospital
HP24	Customer service manager	46	Private healthcare business
HP25	Hospital porter assistance	25	Private healthcare business
HP26	Senior doctor	60	Private healthcare business
HP27	Doctor	38	Public hospital
HP28	Customer service manager	40	Public hospital
HP29	Pharmacist and Dispensing station manager	39	Public hospital
HP30	Laboratory investigation (Lab test) officer	33	Public hospital

## Research findings

The results provide a rich summary of the variety of the patient journey in the healthcare business in Thailand. Thirty informants described three main periods of the patient journey. The findings could be categorized into three periods: 1) Pre-medical service period; 2) In-medical service period; and 3) Post-medical service period, which was repeated by more than one healthcare professionals

from the case analysis. The healthcare professionals saw them as key patients service touchpoints that were found to help develop patient satisfaction. Each patient journey period contained specific influencing service touchpoints that directly relate to patient satisfaction development; four service touchpoints found in the pre-medical service period, three service touchpoints found in the in-medical service period, and three service touchpoints found in the post-medical service period.



### 1) Pre-medical service period

The result found that information transaction and doctor appointment or reservation, front counter and parking and patient pickup point, medical record and registration, vital signs measurement, and medical history taking are service touchpoints in the pre-medical service period. Information transactions and doctor appointments or reservations are related to the information provided on healthcare business websites or social media platforms such as Facebook, Instagram, Twitter, YouTube. Most of the patients prefer to know the basic information of business or company before making their decision. Accurate information and reliability are essential for healthcare businesses. For doctor appointments or reservations, some organizations allow the patient to appoint the doctor or reserve the seat for the medical service queue via an online channel. Furthermore, pre-consultation or information supplication has been provided via telephone and social media applications such as Line, WhatsApp, Facebook, Instagram, Twitter, Messenger, and WeChat. The information transaction and doctor appointments or reservations with healthcare professionals are essential touchpoints in healthcare businesses to make patients trustworthy. The front counter, parking, and patient pickup point are concerned with greeting and hospitality service procedures, car parking and support facilities, and hospital porter assistance. The front area was the first impression creation point of the healthcare business. Hospitality procedures by healthcare professional staff included greeting, smile, eye contact, warm welcome speech, qualified

assistance with attention. Medical record and registration touchpoints had to be established to generate patient profiles and hospital numbers (HN) and included initial history taking for new patients who never visited or used the healthcare business service before. In addition, the next touchpoint under the pre-medical service period is vital signs measurement and medical history taking. This touchpoint was including of blood pressure, temperature, pulse, and respiration. Furthermore, medical history taking was also included in this period because the healthcare professional has to identify a particular clinic or expert doctor for the patient's illness. Thus, these service touchpoints were important to consider as healthcare professionals mentioned: information transaction and doctor appointment or reservation, front counter and parking and patient pickup point, medical record and registration, and vital signs measurement and medical history taking. Three respondents highlighted pre-medical service period that:

*“We provided all basis and essential information such as products and service list, package, and estimated service fees on our websites. In addition, our customer can call to use our pre consultation service before they come to see the doctor as appointment.” (HP12)*

*“It so easy to make an appointment with the specialist. The patient just accesses to our websites or Facebook page then chat with our customer service officer to reserve the seat.” (HP24)*

*“Before patient go to see the doctor, our medical record and registration staff will check patient's health insurance and welfare benefit and create patient profile and hospital number (HN) ...” (HP20)*



One informant further asserted that:

*“Vital signs measurement and medical history taking are important procedure that we have to service the patient in pre-medical service period. There were blood pressure, temperature, pulse, respiration, and medical history taking with new comer patients.” (HP4)*

## 2. In-medical service period

With extensive experience working in the healthcare business, most healthcare professional informants pointed out that the medical service and diagnostic service, medical procedure or nursing procedures, and medical miscellaneous treatment service were the critical service touchpoints in the healthcare business in Thailand. The informants mentioned that the great and warm ambient of doctor consultation and diagnostic service helps to increase patient satisfaction and patient loyalty. The medical or nursing procedures from doctors and nurses are also identified as important service touchpoints. There were the therapeutic, i.e., intended to treat, cure, or restore function or structure such as surgical and physical rehabilitation procedures. In addition, medical miscellaneous treatment service was included in the in-medical service period also. The miscellaneous treatment service was the medical service such as x-ray, ultrasound, MRI scan (Magnetic Resonance Imaging), or CT scan (Computerized Tomography). For the In-medical service period, the interviews showed three influencing service touchpoints that could affect or use to improve patient satisfaction: medical service and diagnostic service, medical procedure or nursing procedures, and medical miscellaneous treatment service.

For example, informants gave a general procedures in-medical service journey:

*“Most of our customer prefer to consult with the same doctor for the second time because they appreciated with medical service and diagnostic service” (HP8)*

Similarly, one informant explained that in-medical service is a part of patient journey and it has impact to patient satisfaction also. For instance,

*“The cherish medical and nursing procedures from healthcare professionals is key factor to attract the patient come to use our healthcare service. There were therapeutic (i.e., intended to treat, cure, or restore function) and surgical and physical rehabilitation procedures etc.” (HP17)*

One respondent further asserted that:

*“...Most of our medical miscellaneous treatment service can generated more revenue to our business such as x-ray, ultrasound, and lab test (Laboratory Investigation). In addition, MRI scan (Magnetic Resonance Imaging) and CT scan (Computerized Tomography) are also popular service that can generate more revenue...” (HP1)*

## 3. Post-medical service period

There was evidence showing that the post-medical service period also directly concerns patient journey in the healthcare business. Most informants mentioned that claim center, cashier, and dispensing or pharmacy were crucial service touchpoints of the patient experience. Most of the patients they concerned about health insurance and welfare benefit right identification accurately, the number of expenses in the billing system, and medicine or drug receiving. The speed time of the service process in this



period is essential. Most patients do not want to spend more time after using all medical services in the healthcare business. Thus, the post-medical service period was another key service touchpoint that healthcare businesses could not de-prioritize inpatient service journeys, as vital informants mentioned in the interview session. Two respondents illustrate post-medical service issue as follows:

*“After medical service such as diagnostic service or medical procedures, health insurance and welfare benefits reconfirmed of the patient will process by claim center department” (HP7)*

*“In general, before pick up or going to dispensing station, the customers have to experience with queue and billing system. Previously, they complain a lot with the service speed and waiting time. Then our healthcare business also facilitates them by reduce waiting time and adding more staff to increase service delivery speed. We try to cover all problems and facilitate our customer in post-medical service to make them satisfy with our value services.” (HP13)*

A similar view from one informant indicated that post-medical service is a part of patient journey:

*“Medicine or drug receiving is the last service encounter of patient experience. Many expectations also expected by the customer such as medicine advisement with warm and friendly sense. Furthermore, the speed time of the service process of this period is essential. Most of patients do not want to spend more time after using medical services, especially in post-medical service as pharmacy station” (HP29)*

## Conclusion and discussion

The objectives of this research were to explore the patient service touchpoints in the healthcare business in Thailand. The study adopted a service design concept approach to identified patients service touchpoints that are perceived as the influencing service encounter of patient satisfaction. This study focuses only on the patient journey of Out-Patient-Department (OPD). The thirty cases had strong service provider in the professional healthcare business in Thailand, including doctors, nurses, and supporting staff.

As the service design concept was adopted in this research, this study was selected customer journey maps as a service design tool to explore the patient service touchpoints in the healthcare business in Thailand. As Thailand Creative and Design Center (TCDC, 2015) mentioned, service designers have been suggested to add flexibility and variety to service design processes depending on context characters, duration, and existing resources. Thus, this research was adopted the thinking processes employed by TCDC. It has been developed from the Double Diamond Model, which The British Design Council first initiated in 2005. The model aims to explain attitudes and work processes that combine creative thinking and design process. The Double Diamond Model is a mixture of four steps: discovered, defined, developed, and delivered (TCDC, 2016). This research follows the model which is 1) discover; the researcher gathering information from healthcare professionals, patients who experienced



in OPD, and related documents then adequate data about for design processes, 2) define; after gaining more information from informants and documents enough, the researchers analyzing and summarizing essential issues such as service design process, service touchpoints, patient journey, and current healthcare business situation in Thailand, 3) develop; brainstorming to produce feasible concepts for developing the patient service touchpoints in the healthcare business to satisfy the patient experience which customer journey approach as well as for meeting service design requirements, and 4) deliver; combining various ideas to create the suitable procedures guideline of service design for the healthcare professional entrepreneur, investor, or developers.

From the results, the findings indicated that all healthcare businesses require patient service touchpoints development. Most of them try to identify service encounters and create products and services to serve or satisfy patient expectations and satisfaction. The findings could be categorized the patient service journey into three periods; 1) Pre-medical service period; 2) In-medical service period; and 3) Post-medical service period, which was repeated by more than one healthcare professionals from the case analysis. The healthcare professionals saw them as key patient service touchpoints that were found to help develop patient satisfaction. Each of these patient journey periods contained specific influencing service touchpoints that directly relate to patient satisfaction development: four service touchpoints found in the pre-medical service period, three service touchpoints found in the in-medical service period, and three service touchpoints found in the post-medical

service period. In addition, Stettler et al., (2018) highlighted the importance of services experiences in the service process as one of the most important components in service design.

Based on all the touchpoints in the customer (patient) journey map of the healthcare business (Out-Patient-Department) and the direction of the key service design innovation derived from patient demand and expectation which fulfill the touchpoints, it is possible to form an innovation design of opportunity points that the patient needs to carry out of healthcare business. The innovative design of opportunity patient touchpoints from the service design approach is mainly based on the result of the service design process. By analyzing the three main periods of medical service, patient service touchpoint innovation procedures were clearly investigated and developed, as shown in Table 2. This is an innovative design of opportunity points based on patient demand and expectation from a healthcare professional perspective. The details were as follows;

1) Innovative design of opportunity points in pre-medical service period; in terms of information transaction and doctor appointment or reservation, innovative design of opportunity points in this touchpoint could be developed user-friendly website and use popular social media to the potential facilitated customer. Yoopetch (2018), stated that social media had crucial influence on the service design in various services industry. In addition, the healthcare business should provide educated customer service staff to deliver essential information about healthcare products and services and pre-consultant the customers. However, all information



must be accurate and reliable information. In addition, both online platforms and telephone should be one of the channels that customer can use to appoint the doctor or reserve a seat for the medical service queue. For front counter and parking and patient pickup point, hospitality service and professional greeting procedures of front area staff are the innovative design of opportunity points to create the first impression such as hospital porter assistant, hostess, valet service staff. The first impression that healthcare professionals can set as service standard such as greeting conversation, warm welcome speech, assistance with attention procedures. For medical records and registration, it is an important touchpoint for the patient journey also. The communication and hospitality service procedures are the innovative design of opportunity of this touchpoint. Because the staff has to generate a patient profile, hospital number (HN), initial history taking for a new patient who never visits or use the healthcare business service before, and health insurance and welfare benefit right check. In terms of vital signs measurement and medical history taking, the innovative design of opportunity point are skillful, educated, and great communication healthcare professionals. This touchpoint was step of blood pressure, temperature, pulse, respiration etc. In addition, it also including of medical history taking that healthcare professional has to identify a special clinic or expert doctor for the patient illness.

2) Innovative design of opportunity points in in-medical service period; from the result, it was found that in in-medical service period during the patient journey, the medical service and diagnostic

service, medical procedure or nursing procedures, and medical miscellaneous treatment service were the innovative design of opportunity points. The great and warm ambient of doctor consultation and diagnostic service is necessary for healthcare professionals. It can lead to patient satisfaction and loyalty. For medical or nursing procedures from doctor and nurse also identified as innovative design of opportunity points. The competence healthcare professionals have been required for this touchpoint. The activities were the therapeutic, i.e., intended to treat, cure, or restore function or structure such as surgical and physical rehabilitation procedures. In terms of medical miscellaneous treatment service, it is the innovative design of opportunity points also. The knowledgeable and competent healthcare professionals have to concentrate with patient. For the miscellaneous treatment service was the medical service such as x-ray, ultrasound, MRI scan (Magnetic Resonance Imaging), or CT scan (Computerized Tomography), Lab test (Laboratory Investigation) etc.

3) Innovative design of opportunity points in post-medical service period; from the finding, it was found that claim center, cashier, and dispensing or pharmacy were the innovative design of opportunity points in post-medical service period. All crucial service touchpoints of patient experience require competence, great communication, and hospitality and service mind staff. Most of the patients are concerned about health insurance and welfare benefit right identification accurately and reconfirmed in the claim process. The accuracy of medical and service fees in the billing system and dispensing have been required. In addition, the queuing system



was an innovative design of opportunity point that healthcare business should be a concern. The speed of service time in the service process is also the focal point of the post-medical service period. Additionally, Yoopetch (2010) suggested that to enhance innovation in services environment, the organization should increase the awareness of knowledge management, especially knowledge acquisition process to continuously improve the service development. Furthermore, Lu, et al. (2020) mentioned, service design thinking has been increasing the attention and attraction for customer in healthcare business and also creating a great potential in creating better. Agreeing with Patricio, L., Sangiorgi, D., Mahr, D., Čaić, M., Kalantari, S., & Sundar, S. (2020) explained, service design can contribute to the evolution of healthcare service system and also focus on patient centered for service satisfaction purpose. In addition, Ponsignon, F., Smart, A., and Phillips, L. (2018) suggested the theoretical insight into service delivery system (SDS) design, the customer

journey can use as a frame to explore dimensions of experience quality that inform design requirements. It can help healthcare professional service provider deliver experience quality to patients.

Further research should investigate more types of healthcare businesses and apply a quantitative approach to increase the generalizability to reaffirm the results of the study. Nevertheless, this research was exploratory research that investigates the patient service touchpoints. It adopted a service design concept approach to identified patients service touchpoints that are perceived as the influencing service encounter of patient satisfaction. In addition, this study focuses only on the patient journey of Out-Patient-Department (OPD). They are limitations of the study. It was expected that this paper had the value that could provide an analysis of the crucial patient service touchpoints that adopted a service design approach to develop customer journey on patient service design in healthcare businesses in Thailand.



**Table 2** Patient journey and service touchpoints in Out-Patient-Department (OPD)

Periods	Service touchpoints	The innovative design of opportunity points
Pre-Medical Service	Information transection and doctor appointment or reservation	<ul style="list-style-type: none"> <li>- Information on the website and social media platforms such as Facebook page</li> <li>- Telephone consultation with customer service and information distribution</li> <li>- Hospital application or social media application interaction such as Line, WhatsApp, Facebook, Instagram, Twitter, Messenger, WeChat.</li> </ul>
	Front counter and parking and patient pickup point	<ul style="list-style-type: none"> <li>- Greeting and hospitality service procedures</li> <li>- Car parking and support facilities</li> <li>- Hospital porter assistance</li> </ul>
	Medical record and registration	<ul style="list-style-type: none"> <li>- Patient profile and hospital number (HN) creation</li> <li>- Health insurance and welfare benefit right check</li> <li>- Initial history taking</li> </ul>
	Vital signs measurement and medical history taking	<ul style="list-style-type: none"> <li>- Vital signs procedures such as blood pressure, temperature, pulse, respiration.</li> <li>- Medical history taking</li> </ul>
In-Medical Service	Medical service and diagnostic service	<ul style="list-style-type: none"> <li>- Doctor consultation and diagnostic service</li> </ul>
	A medical procedure or nursing procedures	<ul style="list-style-type: none"> <li>- Medical or nursing procedures from doctor and nurse such as therapeutic (i.e., intended to treat, cure, or restore function or structure) such as surgical and physical rehabilitation procedures.</li> </ul>
	Medical miscellaneous treatment service	<ul style="list-style-type: none"> <li>- x-ray, ultrasound, MRI scan (i.e., Magnetic Resonance Imaging) , CT scan (Computerized Tomography), Lab test (Laboratory Investigation) etc.</li> </ul>
Post-Medical Service	Claim Center	<ul style="list-style-type: none"> <li>- Health insurance and welfare benefits reconfirmed</li> </ul>
	Cashier	<ul style="list-style-type: none"> <li>- Payment/ billing system</li> <li>- Queue system</li> </ul>
	Dispensing/ Pharmacy	<ul style="list-style-type: none"> <li>- Medicine/drug advisement</li> <li>- Medicine/ drug receiving</li> </ul>

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