MANAGEMENT OF SERVICE INNOVATION QUALITY

Mu, Y.

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Chapter 2 Managing service innovation at online travel agencies: evidence from China[1]

Research on service innovation management of online travel agencies (OTAs) remains relatively scarce. Based on an existing framework and an analysis of success factors reported in the literature, as well as the results of a case study in this present research, we restructure the framework and associate it with various success factors. We conduct a case study at Ctrip, the largest OTA in China. The proposed tripartite framework consists of three facets of service innovation management: (1) resources, including stakeholders, technologies and systems; (2) contexts, including innovation strategy, structure and culture; and (3) ideation, including idea generation and application. This framework of managing online travel service innovation provides academia with a model that can be used as a point of departure for future research. To practitioners of OTAs, the model suggests them to adopt a structured approach that balances resources, contexts and ideation in their service innovation management.

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[1] This chapter is based on a paper in the second round of revision at *Journal of Service Theory and Practice*: Mu, Y., Bossink, B., Vinig, T. and You, S. (2018) Managing service innovation at online travel agencies: evidence from China. *Journal of Service Theory and Practice: in the second round of revision*.

2.1 Introduction

Despite the importance of service innovations as a determinant of a firm's performance, many service firms still have almost no management mechanism in place for pursuing service innovations. Service innovation used to be treated generally as an unsystematic search-and-learn process, but there is an increasing tendency for systematic and structural management of service innovation in service firms (Sundbo, 1997; Thomke, 2003).

This study focuses on the context of online travel services. The Internet and web-based platforms have significantly changed the way customers allocate knowledge about hotels, flights and destinations, buy travel services, and undertake online consultations. New information and communication technologies (ICTs), e.g., online booking engines, have transformed the structure of the tourism distribution system into a multi-channel network. This change raises new managerial challenges for tourism firms such as travel agencies (Grissemann and Stokburger-Sauer, 2012). With the development of the Internet, online travel agencies (OTAs, e.g., Booking and Expedia) facilitate e-commerce, and have emerged as powerful and efficient distribution channels and intermediaries within the tourism industry. The context in which an OTA operates is different from that of a traditional travel agency. Compared with other segments of the tourism industry (Nieves and Segarra-Cipres, 2015; Henderson et al., 2018), online travel service is one segment where academic research on its innovation management and processes is limited.

This study attempts to deepen the understanding of service innovation management in the context of online travel services, through addressing the following research question: *What are the components of service innovation management for OTAs?* This study responses to the calls: (1) from service research for exploring the approach of stimulating service innovations (Ostrom et al., 2015), and (2) from research on service innovation management for micro-level studies of innovation processes and practices, specifically in the context of tourism (Hjalager, 2010). We present a framework that provides (a) academia with a point of departure for future research, and (b) practitioners with a structured and balanced approach of online travel service innovation management.

This study combines a new service development (NSD) framework which concerns the process aspect of service innovation (Johnson et al., 2000) and a recent meta-analysis of success factors of service innovation (Storey et al., 2016). Through analyzing the results of an explorative case study, we restructure the NSD framework, and associate its elements with the success factors. It results in a further specified framework of online travel service innovation management.

Extant service investigations tend to concentrate on developed economies, such as the US and Europe. We take the perspective of OTAs in emerging economies (specifically China)

to complement existing service innovation research. More studies are needed on Chinese innovation activities and efforts (Vinig and Bossink, 2015). The fast growth of, and the enormous demand in the Chinese tourism industry further support the relevance of conducting our study in this context.

We conduct an in-depth case study of Ctrip, the largest and leading OTA in China, to offer a description and analysis of how it manages service innovations. Ctrip is chosen as the exemplary firm at which the study is conducted, because it remains its competitiveness through continuously innovating its services, and because it is a frontrunning example of current innovative practice in this area.

The remainder of this paper is structured as follows. The next section provides the theoretical background of this research. The method and findings of the case study are presented in the third and fourth section respectively. A discussion and concluding section follow, containing theoretical and managerial implications of the present research and avenues for future research.

2.2 Theoretical background

In this section we first discuss frameworks that are used frequently to model service innovation in the literature. We then argue that there is a need for including the process aspect into a framework, and present the basic framework that this research adopts and aims to further develop. In the last subsection we offer an overview of success factors of service innovation, which will be studied in practice to possibly synthesize them into the further development of a service innovation management framework for OTAs.

2.2.1 Frameworks of service innovation

Existing research has produced representative frameworks of modeling service innovation (see Table 2.1), some of whom are recently developed and inspired by service-dominant logic (S-D logic). S-D logic serves as a theoretical lens to study issues related to service innovation (Vargo and Lusch, 2016). From the S-D logic perspective, Ordanini and Parasuraman (2011) propose and test a conceptual framework with collaborative competences, dynamic capabilities of customer orientation and knowledge interfaces as the antecedents of service innovation. Likewise, following this logic, Lusch and Nambisan (2015) offer a framework of service innovation that contains service ecosystems, service platforms and value co-creation. In addition, some studies develop dimensional frameworks to view service innovations from multiple dimensions (den Hertog, 2000; den Hertog et al., 2010; Rubalcaba et al., 2012). The main characteristics of the aforementioned frameworks are summarized in Table 2.1.

Table 2.1 Studies on service innovation frameworks

Study	Main characteristic
den Hertog (2000)	Emphasis on non-technological factors in innovation
den Hertog et al. (2010)	Emphasis on dynamic capabilities for managing service innovation
Ordanini and Parasuraman (2011)	Investigation of the antecedents and consequences of service innovation
Rubalcaba et al. (2012)	Rethinking service innovation with a particular emphasis on organizational and customer co-creation perspectives
Lusch and Nambisan (2015)	Aiming to transcend the tangible-intangible and producer-consumer contrasts

Concluded from Table 2.1, extant literature frequently constructs frameworks to shape service innovations, and capture their components and dimensions. Among these studies, den Hertog et al. (2010) emphasize the relevance of service innovation management; and Rubalcaba et al. (2012) acknowledge that a process perspective should be taken to organize service innovations. However, these existing frameworks limit the recognition or incorporation of the components of managing and organizing service innovation, particularly from a *process* perspective.

To further the understanding of online travel service innovation management, we attempt to devise a framework that takes the service innovation process as a crucial aspect into consideration. Due to the lack and need of a framework concerning the process aspect in the field of service innovation, this study integrates knowledge from the literature stream of NSD. We choose the NSD framework of Johnson et al. (2000) as the basic theoretical framework of this study for the following reason: The framework reflects a centrist perspective of the process, and corresponds to the process-oriented approach of this present research. Besides, this study aims to investigate Chinese innovation management practices through applying and refining western-centric innovation theories (Vinig and Bossink, 2015). In turn, insights in the Eastern views have the potential to further enrich existing theories (Alon et al., 2011).

2.2.2 Basic approach and framework

Johnson et al. (2000) frame the processes, enablers and activities of NSD in a model (Figure 2.1). They capture the basic steps that are shared by various models of the new product development process, and synthesize and integrate them into four general stages of NSD. These stages are design, analysis, development and launch. This four-stage, cyclic and iterative NSD process framework has been widely recognized in the literature (Menor

et al., 2002; Froehle and Roth, 2007). The framework implies that firms go through the four stages continuously to develop new services, and can go through more than one cycle at the same time. In their framework, Johnson et al. (2000) also present several enablers of NSD, as well as the respective activities at each of the four stages. The enablers include people, technology, systems, organizational context, teams and tools. Among the activities, three activities are located at the design stage, two at the analysis stage, six at the development stage, and two at the full launch stage. In summary, according to Johnson et al. (2000) NSD processes can be modeled as a series of continuous, cyclic and repetitive design-analysis-development-launch activities; and these activities, supported by people, technology, systems, organizational context, teams and tools, lead to new services (see Figure 2.1).
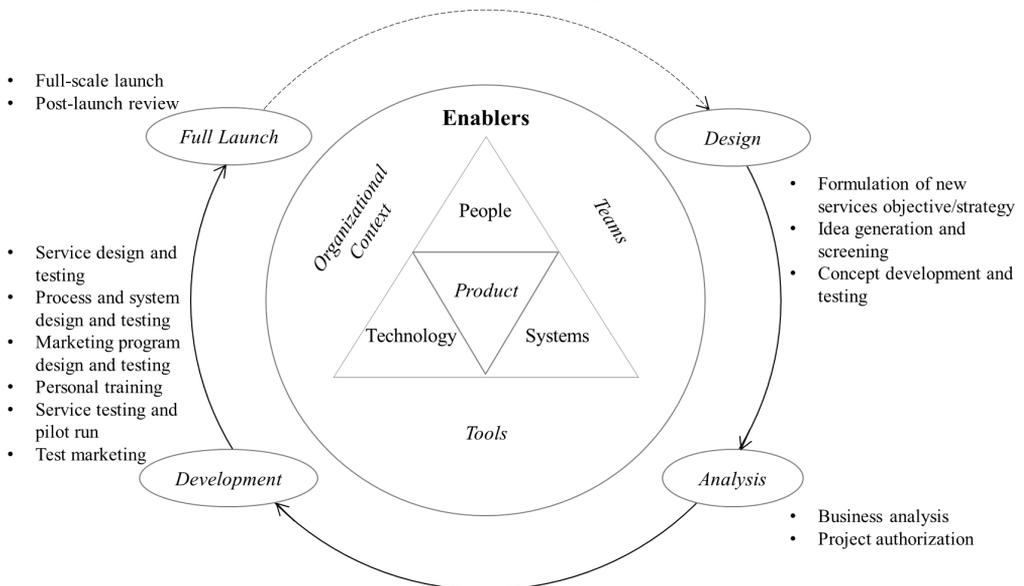
Figure 2.1 Framework of new service development (Johnson et al., 2000)

In the early service innovation literature, sometimes the concept of NSD is used interchangeably with service innovation (Menor et al., 2002). And recently, in the literature, NSD tends to be viewed as, and limited to the formal development process of service innovations (Snyder et al., 2016; Witell et al., 2016). Although these developmental stages of NSD are critical, particularly for some radical service innovations, we argue that this specific view can be extended. For example, other less innovative service innovations might not have this sort of NSD-style process to transform ideas into innovations. Furthermore, next to developmental processes also organizing and marketing processes can

be modeled as being part of the service innovation process. Therefore, it is needed to explicitly model the entire process of service innovation, from new ideas up until mass service delivery and all intermediate processes, in order to fully grasp the related complexities and prepare for various service innovations. The processes in the model of Johnson et al. (2000) could be extended with this process view.

2.2.3 Success factors of service innovation

A recent meta-analysis of Storey et al. (2016) reveals the success factors of service innovation. We list the top 10 success factors and five selected success factors in Table 2.2. These 15 success factors will be analyzed in our case study, and it will be investigated if, how and why these can be synthesized into a specific framework of online travel service innovation management.

Table 2.2 Success factors of service innovation

No.	Success factor	Rank order [a]
1	Launch proficiency	1
2	Absorptive capacity	2
3	Organizational design	3
4	Innovation strategy *	4
5	Efficiency of development process	5
6	Service innovativeness	6
7	Frontline employee involvement *	7
8	External relations	
9	Internal communication	9
10	Formal/Structured development process	
11	Proficient operations and delivery systems *	N.A.
12	Knowledge integration mechanisms *	
13	Customer integration/input	
14	Technological sophistication	
15	Innovation culture	

[a] From Storey et al. (2016). Only rank orders of top 10 success factors are shown.

* Success factors specific for service innovation, not for product innovation.

All factors will be explained and exemplified in the remainder of this section.

Launch proficiency (No. 1 in Table 2.2), *efficiency of development process* (No. 9) and *formal/structured development process* (No. 10) are critical success factors of service innovation related to the NSD process (Storey et al., 2016). Personnel training is relevant for *launch proficiency*, as training the service delivery workforce prepares employees for

proficient service encounters (Alam, 2011). Cross-functional teams play an important role in the *efficiency and formalization/structuration of development process* (Alam and Perry, 2002; Alam, 2011). Disney for example trains employees to guide customers to use new services (Ford et al., 2012). Its new services are generally developed by cross-functional teams, and some parts of their design are outsourced to Disney's internal Imagineering division or external design specialists (dos Santos and Spann, 2011).

Absorptive capacity (No. 2), *internal communication* (No. 5) and *knowledge integration mechanisms* (No. 12) are success factors of service innovation related to information processing (Storey et al., 2016). *Absorptive capacity* stresses the importance of an ability to acquire, assimilate and adopt external knowledge for successful tourism innovations (Weidenfeld et al., 2010). Intangible services depend more on knowledge delivery from person to person and *internal communication*. A series of *knowledge integration mechanisms* is required to capture, collate, store and share knowledge that is critical for tourism innovation (Cooper, 2006). Likewise, the Qualcomm Venture Fest (QVF) competition encourages internal open communication, collaboration, knowledge sharing and integration, and mentorship among Qualcomm's employees (dos Santos and Spann, 2011).

Given the importance of service employees for service innovation, there is an increasing need for *organizational design* (No. 3), such as the design of organizational innovation structures, to enable service innovations (Jaakkola and Hallin, 2018). Sometimes an innovation unit in service firms is the top strategical type for service innovation management (Sundbo, 1997). These professional organizational units take the form of a team, group, department or even center, e.g., Bank of America's Innovation & Development Team (Thomke, 2003), United Airlines' cross-functional teams (Kimes and Young, 1997), and Disney's products and services planning and development department (Zomerdijk and Voss, 2011). There are at least four types of organization structures for service innovation: existing organizational unit(s) relegated with an additional task of service innovation management; cross-functional project teams formed temporarily for service innovation execution; an innovation committee for service innovation evaluation; and an independent and professional organizational unit for service innovation management (Kimes and Young, 1997; Fähnrich and Meiren, 2007). One service firm may use multiple structures to organize its service innovation efforts (Griffin, 1997). For example, Virgin Atlantic involves two innovation departments in its NSD processes (Zomerdijk and Voss, 2011).

Innovation strategy (No. 4) is identified as a success factor in the meta-analysis of service innovation (Storey et al., 2016), but not in several meta-analyses of product innovation (Henard and Szymanski, 2001; Evanschitzky et al., 2012). It may be because an innovation

strategy is generally given in many manufacturing firms, whereas in service firms, service innovation and its related strategy are not always a priority (Storey et al., 2016). Innovation strategy implies a firm's openness to new ideas and propensity to changes, and is crucial to drive a strategic competitive advantage, especially in a turbulent marketplace (Storey et al., 2016). For example, Qualcomm's internal bottom-up innovation contests function as a part of its innovation strategy, as well as other methods of involving employees, suppliers or customers in service innovation (dos Santos and Spann, 2011).

Service innovativeness (No. 6) is another critical success factor of service innovation (Storey et al., 2016). Firms strive for service innovativeness to keep in close touch with customers and their needs (Gatignon and Xuereb, 1997). Innovative ideas of service innovation stem from firms' internal and external information sources, such as employees, customers, competitors, suppliers and partners. Regarding internal information, employees are a critical source of customer-generated feedback and new ideas (Umashankar et al., 2011). Qualcomm, for example, implies QVF to collect employees' ideas (dos Santos and Spann, 2011). Regarding external information, firms can even capture information from other industries to gain inspiration for their own innovations. Disney for example follows developments in retail and manufacturing with an attempt to apply these innovations in its service processes (Zomerdijk and Voss, 2011).

Frontline employee involvement (No. 7), *external relation* (No. 8) and *customers integration/input* (No. 13) are success factors of service innovation (Storey et al., 2016). They are related to *people*, one of the enablers in the NSD framework of Johnson et al. (2000). Service innovation is a collaborative effort that involves various stakeholders, including internal ones (e.g., frontline employees, innovation project teams and managers) and external ones (e.g., customers, suppliers, business partners and research institutes) (Smith and Fischbacher, 2005). For example, service innovations in firms such as IKEA and Starbucks are based on the shared values of each firm's stakeholders (Edvardsson and Enquist, 2011). *Frontline employee involvement* in service innovation serves as a crucial source of innovation knowledge (Ordanini and Parasuraman, 2011). The emergence of theories about open innovation in services and the service ecosystem emphasizes the effect of a partner alliance as a form of *external relation* (Lusch and Nambisan, 2015). Moreover, *customers integration/input* as a resource of service innovation helps firms to capture the explicit and implicit customer needs (Storey and Larbig, 2018).

Proficient operations and delivery systems (No. 11) can cope with customer requirements and the appropriateness of technologies inherent in them, and thus lead to longer term performance gains (Storey et al., 2016). As more and more standardized services and processes are embedded into self-service delivery systems, service failures are primarily associated with the lack of proficient delivery systems (Dotzel et al., 2013). The boarding

process of United Airlines, code-named WILMA (window-middle-aisle), uses six zones on both sides to identify seating order and reduce boarding time. This system is continuously improved and solves the problems that potentially disrupt the WILMA process (Kimes and Young, 1997). Another example is Qualcomm's online idea management system. Named Qualcomm Innovation Network, this system provides a platform for employees to submit, discuss and rate ideas via a website (dos Santos and Spann, 2011).

The meta-analysis of Storey et al. (2016) indicates that *technological sophistication* (No. 14) is also a success factor of service innovation. Technology (particularly ICT) enhances the success of service innovation (Srivastava and Shainesh, 2015). The use of Internet technology is one of the characteristics that distinguish service innovations from product innovations (Dotzel et al., 2013). A strong technological base seems to be a prerequisite to good innovation performance in most service sector segments (Hollenstein, 2003). For example, depending on R&D, Bank of America pioneers new advanced techniques for its sophisticated services (Thomke, 2003). In addition to this, due to the lack of a strong patent protection, service innovations are easy to be quickly imitated by competitors (Atuahene-Gima, 1996a). But a service innovation with a higher degree of *technological sophistication* seems harder to be imitated, and thus can have a higher success rate (Storey et al., 2016).

By supporting innovation, creativity and learning, *innovation culture* (No. 15) has a particularly large impact on strategic competitive advantage (Zomerdijk and Voss, 2011). Innovation culture encourages new and different ways of satisfying unmet needs and dealing with unsolved problems (de Brentani, 2001). In firms with an innovation culture, innovative ideas are encouraged and supported, innovation efforts are recognized and rewarded, resources are frequently set aside to facilitate innovation efforts (Amabile et al., 1996), and stakeholders are actively involved in service innovations (de Brentani and Ragot, 1996). QVF competition cultivates and promotes an innovation culture in Qualcomm (dos Santos and Spann, 2011).

2.3 Method

This study employs a qualitative empirical research approach to examine our phenomenon-driven research question (Eisenhardt and Graebner, 2007): *What are the components of service innovation management for OTAs?* The use of qualitative procedures helps to describe the phenomenon, by exploring key events and practices, as well as the logics behind them. Based on this, an in-depth case study approach is adopted as the empirical research strategy of our qualitative approach to develop initial theoretical insights into OTAs' management of service innovation (Yin, 2014). Case study research is appropriate to investigate microlevel activities, by (1) enabling the researchers to undertake a detailed examination of the way that multiple activities and exchange processes are

enacted, and (2) allowing a deep and thorough understanding of the context setting (Yin, 2014).

2.3.1 Case background

Our case study focuses on service innovation management at Ctrip, the largest OTA in China. Established in 1999, Ctrip has been listed on the NASDAQ since 2003. In 2016, Ctrip has approximately 37000 employees and is ranked one of the top three global OTAs in terms of market capitalization. Ctrip provides a full range of comprehensive online travel services to more than 250 million members, including accommodation reservation, ticket booking, corporate travel management and tourist information. This empirical setting enables an explanation and understanding of how an OTA successfully manages and organizes its service innovations. Accordingly, Ctrip is selected as a suitable and critical case firm for the following two reasons. Firstly, Ctrip model is an appropriate and representative example of Chinese OTA. Secondly, numerous service innovations have been initiated by Ctrip, such as 'One Hour Trapeze Channels', 'Six Sigma Improvement' and 'Transparent Tour'. Therefore, this case of Ctrip can offer rich empirical data on the phenomenon we are studying (Siggelkow, 2007), i.e., components of service innovation management in the context of online travel services.

2.3.2 Data collection

A detailed case protocol is created and derived from the literature (Johnson et al., 2000; Storey et al., 2016), in order to guide a systematic data collection and analysis. The used materials are partly summarized from observations and one author's work experience (currently as a director) during a 15-year period in Ctrip, and partly picked from an extensive search for secondary materials on Ctrip. Data are collected from multiple information sources, being: observations, archives and artifacts (like applications of ICT), to ensure data triangulation.

Being in the middle of everyday work makes it possible to recognize the operation and management processes in the studied context, by engaging in daily management operation, group meetings and informal discussions with colleagues. In addition to a summary from work experience, two presentations about Ctrip's innovation management are also gathered. Through observation of site visits and displayed artifacts, field notes are developed as a further source. A wide range of supplementary materials for data triangulation are collected from Ctrip's website and other public sources, including annual reports, publications and news-items. The sources and composition of data are shown in Figure 2.2.
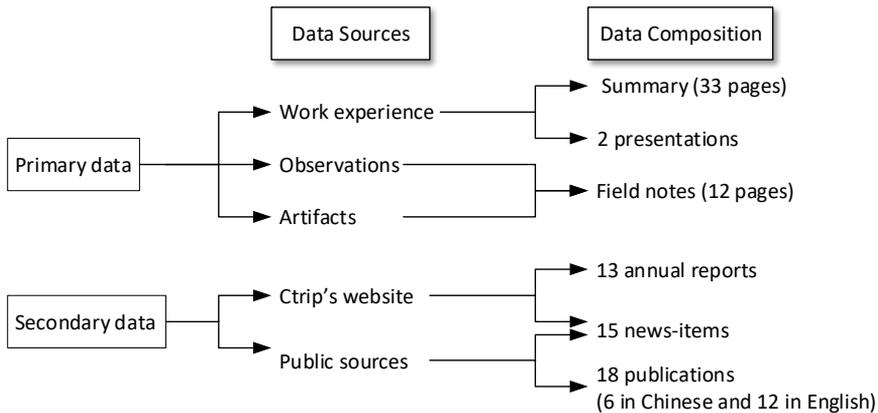
Figure 2.2 Data sources and composition

By means of triangulation of data from multiple sources, and the combination of observation data and archival data, we reach a thorough understanding of the research phenomenon, and mitigate potential retrospective bias in the author's summary.

2.3.3 Data analysis

We use an inductive approach to data analysis. We progress from the empirical details towards a data structure that could be compared, categorized, discussed and analyzed (Langley, 1999), in terms of the chosen basic theoretical framework and success factors (Johnson et al., 2000; Storey et al., 2016). In the coding process, we follow the Gioia methodology (cf. Gioia et al., 2012), and take a further step to categorize the aggregate dimensions (outcome of the third coding stage) into a tripartite management framework.

First, we code the data in vivo terms, to adhere faithfully to the original concepts from the empirical materials. Second, we seek for the similarities and differences among the first-order concepts, and then link them with the second-order themes. This second coding stage is sensitized and guided by the selected success factors of service innovation (Storey et al., 2016). During this stage, the analysis becomes more explicitly theory-driven, as it focuses on nascent concepts for discovering the theoretical contribution contained in the empirical results. Third, the second-order themes are aggregated according to which elements of service innovation management (SIM) they are related; the basic theoretical framework of Johnson et al. (2000) serves as an analytical framework at this stage. Fourth, the aggregate dimensions/elements are further categorized into three manageable facets in a tripartite framework. Figure 2.3 demonstrates the outcome of this data structuration process.
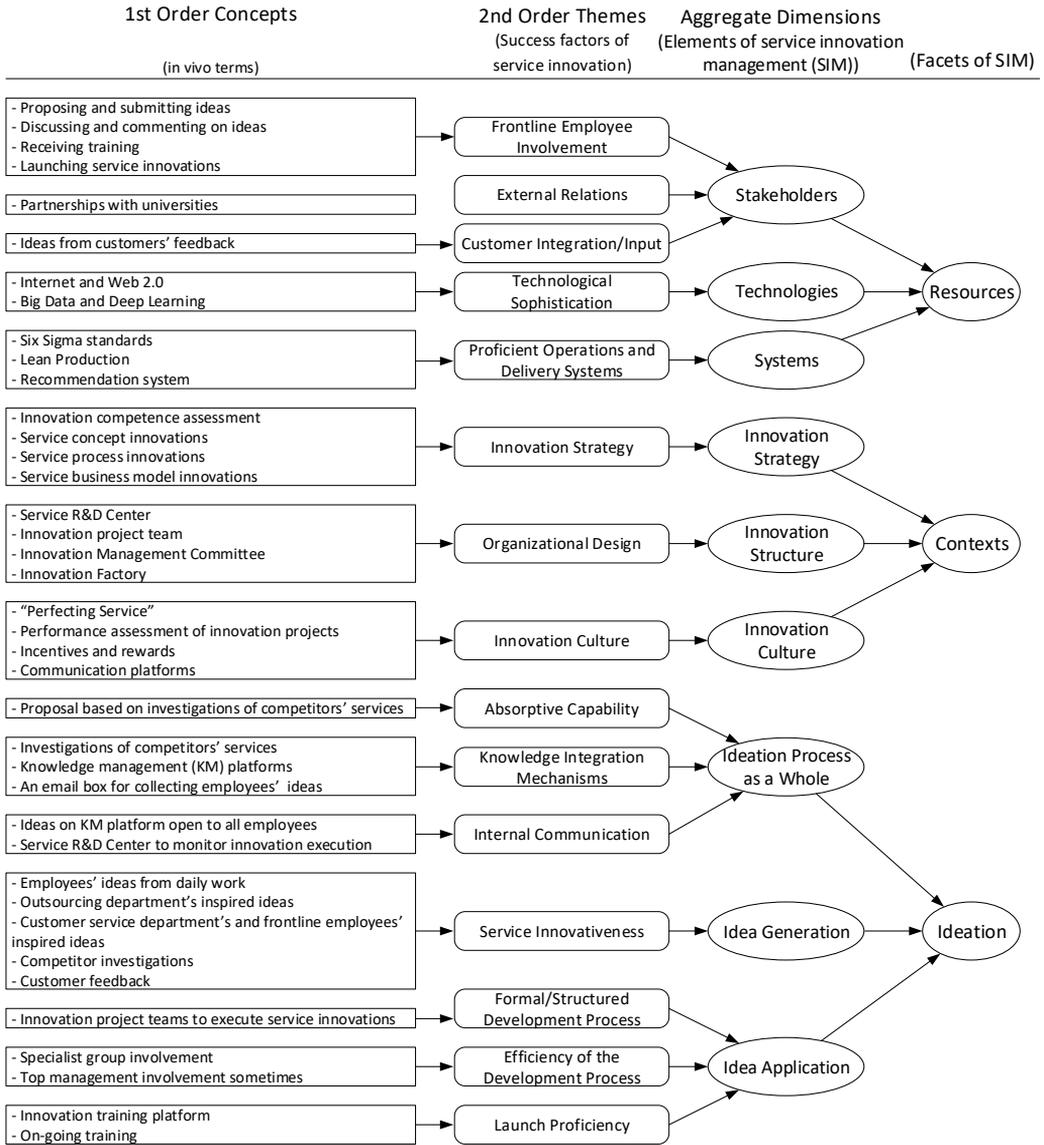
1st Order Concepts

(in vivo terms)

2nd Order Themes
(Success factors of
service innovation)

Aggregate Dimensions
(Elements of service innovation
management (SIM))

(Facets of SIM)

- Proposing and submitting ideas
- Discussing and commenting on ideas
- Receiving training
- Launching service innovations

Frontline Employee
Involvement

- Partnerships with universities

External Relations

Stakeholders

- Ideas from customers' feedback

Customer Integration/Input

- Internet and Web 2.0
- Big Data and Deep Learning

Technological
Sophistication

Technologies

Resources

- Six Sigma standards
- Lean Production
- Recommendation system

Proficient Operations and
Delivery Systems

Systems

- Innovation competence assessment
- Service concept innovations
- Service process innovations
- Service business model innovations

Innovation Strategy

Innovation
Strategy

- Service R&D Center
- Innovation project team
- Innovation Management Committee
- Innovation Factory

Organizational Design

Innovation
Structure

Contexts

- "Perfecting Service"
- Performance assessment of innovation projects
- Incentives and rewards
- Communication platforms

Innovation Culture

Innovation
Culture

- Proposal based on investigations of competitors' services

Absorptive Capability

- Investigations of competitors' services
- Knowledge management (KM) platforms
- An email box for collecting employees' ideas

Knowledge Integration
Mechanisms

Ideation Process
as a Whole

- Ideas on KM platform open to all employees
- Service R&D Center to monitor innovation execution

Internal Communication

- Employees' ideas from daily work
- Outsourcing department's inspired ideas
- Customer service department's and frontline employees'
inspired ideas
- Competitor investigations
- Customer feedback

Service Innovativeness

Idea Generation

Ideation

- Innovation project teams to execute service innovations

Formal/Structured
Development Process

- Specialist group involvement
- Top management involvement sometimes

Efficiency of the
Development Process

Idea Application

- Innovation training platform
- On-going training

Launch Proficiency

Figure 2.3 Data structure

2.4 Results

This section presents the results of the case study. By means of data analysis and restructuring the NSD framework of Johnson et al. (2000), we suggest that the management framework of online travel service innovation is tripartite in three facets:

resources, contexts and ideation. We divide the enablers of Johnson et al. (2000) into two aspects: resources and contexts. Considering the differences between service innovation and NSD, we replace the original four-stage NSD process with a more general ideation process. In the following three subsections, these three facets and related elements will be presented respectively in detail. Table 2.3 summarizes the service innovations situated in Ctrip that are involved in the procedure of data analysis.

Table 2.3 Ctrip's service innovations involved in data analysis

Year of first launch	Name of service innovation	Brief introduction of the innovation	Involved in subsection
2003	Six Sigma Improvement	Implementing Six Sigma standards to improve services	2.4.1 & 2.4.3
2006	One Hour Trapeze Channels	A service that flight tickets can be booked one hour prior to the take-off	2.4.2 & 2.4.3
2007	Service 2.0	A service model that provides large-scale replicable services	2.4.1 & 2.4.2
2008	Transparent Tour	Exposing the details in package tours	2.4.2 & 2.4.3
2010	Working from Home	An experiment that call center employees deliver services at home	2.4.1 & 2.4.3
2010	60-Day Global Travel	A package tour of traveling around the world in 60 days	2.4.2
2011	Hotel Groupon	Low-price hotel bookings for leisure travelers	2.4.2
2015	WeChat Escort	An online tour guide via WeChat	2.4.2
2017	Traveling Housekeeper	Delivering travelers' luggage from hotels to airports	2.4.2

2.4.1 Resources

Three interactional resources of service innovation involve stakeholders, technology and systems. For each of the three elements, it is identified what success factors of service innovation are associated.

Stakeholders. Ctrip involves its entire employees in service innovation activities. All employees can freely submit and share their innovative ideas. *Frontline employee involvement* is particularly critical in Ctrip's service innovations. Specifically, Ctrip's frontline employees propose and submit their novel ideas, discuss and comment on others' ideas, receive training for service innovations, and then launch these innovations. With regard to its *external relations*, Ctrip has partnerships with many Chinese and oversea universities for matters of service innovation. For example, Ctrip cooperated with Stanford

University in the experiment of 'Working from Home' (Bloom et al., 2015). Besides, in a form of *customer integration/input*, Ctrip integrates customers' suggestions, comments and complaints as an input of new ideas.

Technologies. Ctrip continuously improves the degree of *technological sophistication* in its service innovations. In China, Ctrip was the first to apply the Internet technology in the traditional tourism industry on a large scale. Ctrip's business was expanded from the original hotel reservation to one-stop online travel services, such as airline ticket reservation, travel product selling, business travel product selling, special customer service and travel information service. Supported by Web 2.0 and other high technologies, Ctrip creates a novel service model of 'Service 2.0' in 2007. By adopting the technologies of Big Data and Deep Learning, Ctrip recommends to each customer a list of items according to individual interests.

Systems. Ctrip has established various *proficient operations and delivery systems* for service innovation. Ctrip learns from OTAs in Europe and the US (e.g., Expedia), but does not completely copy them. It develops in an independent, innovative way. Ctrip was the first firm in Chinese tourism industry that implemented Six Sigma standards from manufacturing to operate its services. Ctrip has established Six Sigma standards for quality management and customer service operations, and imported Lean Production of Toyota into its service management. Booking a vacation product package from Ctrip is taken as an example. The booking process is made up of 39 steps, 166 key performance indicators and 266 improvable 'defect points'. Ctrip has controlled the qualified rate of its services over 99.9%. As recommendation systems become increasingly popular in e-commerce (Xiao and Benbasat, 2007), Ctrip's recommendation system decreases the time that customers make decisions, and increases customer loyalty and per capita gross margin.

2.4.2 Contexts

The contexts of service innovation include innovation strategy, structure and culture. For each element, it is identified what success factors of service innovation are associated.

Innovation strategy. Ctrip regards innovation as its core competitive advantage for a long-term development. Ctrip's service innovations involve broad categories of service innovations to change customers' perception and exceed their expectation. The categories involve service concept, process and business model innovations (Hsieh et al., 2013; Ostrom et al., 2015). Developing service concept innovations is to create new services of Ctrip to meet customers' needs, e.g., 'One Hour Trapeze Channels' in 2006, 'Transparent Tour' in 2008, '60-Day Global Travel' in 2010, 'Hotel Groupon' in 2011, and 'Traveling Housekeeper' in 2017. In 2015, Ctrip organized 'WeChat Escort' to be an online tour guide for solo tourists. Professional escorts built up various chat-groups with different themes for tourists via WeChat, a popular social-media platform in China. Developing service process

innovations is to optimize, improve and rebuild Ctrip's existing service processes, and even redesign new ones. For instance, Ctrip launched an improvement project of shortening calling time, through analyzing calling recordings, to figure out operators' best speaking speed perceived by customers, and to investigate how to meet customer demand in the shortest time. Ctrip treats service business model innovations as synthetic innovations related to its service strategy, which are combined with methods of value creation, distribution channels, and cost and income approaches. 'Service 2.0' is an example of Ctrip's service business model innovation.

Innovation structure. Ctrip has established a series of formalized organizational structures for service innovation management. This *organizational design* is a positive signal that Ctrip values service innovations. Referring to technology R&D departments in software firms, Ctrip transformed its quality management department into a *Service R&D Center*. In addition to its former responsibilities of service quality management, new responsibilities are supplemented to the Service R&D Center, such as R&D, support and management of service innovation activities, and investigation of competitors' service activities. An *innovation project team* is established to execute a specific innovation project. Ctrip set up an *Innovation Management Committee* to evaluate radical service innovations, whose members are top managers, innovation talents and the head of the Service R&D Center. The duty of the Innovation Management Committee is to review the value of ideas for radical service innovations, and decide whether to apply them or not. When the Innovation Management Committee identifies and recognizes a radical idea, a cross-functional innovation project team is established to execute this idea. Another emerging organizational structure in Ctrip is entitled *Innovation Factory*, whose main function is to assist internal entrepreneurs to independently develop service innovations.

Innovation culture. Ctrip treats innovation as its core corporate culture. The developed concept of 'Perfecting Service' serves as Ctrip's corporate culture DNA, which drives Ctrip to continuously innovate and improve its services. Numerous factors support in constructing and maintaining Ctrip's service innovation culture. Ctrip assesses the performance of completed innovation projects. For new service innovation business development, the assessment aspects include the degree of acceptability, financial profit and so on. The Service R&D Center takes the responsibility of performance assessment, and physically and mentally rewards the related employees, including the provider of the innovative idea and members of the innovation project team. Besides, financial incentives ranging from ¥1,000 to $1,000,000 (around ¥6,600,000) are rewarded to individuals or business units in a month. As a result, employees' entrepreneurial passion is largely encouraged, an innovation climate is created, and ideas emerge constantly in Ctrip. Moreover, Ctrip creates a working environment that every employee can express ideas and builds up communication platforms for innovation, such as a knowledge management (KM)

platform and an innovation training platform.

2.4.3 Ideation

Innovation process is highly dependent on the input and processing of information in the form of new ideas (Salomo et al., 2007). The basis of many service innovations is often formed by totally new or new-to-the-organization ideas (Salge et al., 2013). The initial activities of idea generation and the subsequent activities of idea application are both important consecutive activities in the ideation process of service innovation. In this context, idea generation is seen as the information gathering process that enables the discovery of service innovation opportunities (Reid and de Brentani, 2004); and idea application is seen as the use of this information to actually develop the related service innovations (Cooper and Kleinschmidt, 1995). Similar to the four-stage NSD process of Johnson et al. (2000), the ideation process of service innovation is regarded to be continuous, cyclic and iterative in nature (de Reuver and Bouwman, 2012). For the whole, and for two separate processes, it is identified what success factors of service innovation are associated.

Ideation process as a whole. Ctrip's marketing department launches investigations of competitors' services to improve Ctrip's existing services or develop new services by means of *absorptive capability*. Through understanding the different strategic aspects of competitors' new service products (e.g., function, position and marketing) and combining them with Ctrip's own business, related suggestions (e.g., imitation and independent development) are proposed to decision makers. To collect internal ideas from employees effectively, Ctrip has constructed and maintained a KM platform as well as an email box to facilitate employees' conversations, views and mindsets. Numerous good ideas are identified in the email box every month. For instance, around 2500 suggestions were collected in during six months in the year 2015. Through these investigations and platforms, Ctrip forms a series of *knowledge integration mechanisms*. The KM platform is connected with Ctrip's Intranet for *internal communication*. Ideas submitted to the KM platform are open to all employees for discussions and comments. Ctrip's Service R&D Center communicates with innovation project teams to monitor the execution of relevant projects for improving the service processes. Taking 'Six Sigma Improvement' as an example, the project manager is required to report to the Service R&D Center during the process.

Idea generation. Ctrip seeks for opportunities of service innovation by gathering internal and external information for *service innovativeness*. Employees themselves can get ideas of improvement or new services during their daily work. In touch with suppliers directly, the outsourcing department is inspired by suppliers to generate innovative ideas. Ctrip also collects ideas from competitors and customers in the external context. Competitor

investigations help Ctrip to catch new trends of competitors as well as the industry. Ctrip has established a customer experience platform to collect and record customers' comments, and launches questionnaires for measuring and improving customer satisfaction and experience. Customers also express their feedback or ideas by means of complaints, suggestions, meetings and other interactive activities. Besides, their demands and novel ideas may be caught by Ctrip's customer service department or frontline employees. For instance, the idea of developing Ctrip's 3G mobile client is proposed by many customers. Following these suggestions, Ctrip's first client for iPhone was launched to the market in 2010, and clients for other mobile platforms are developed subsequently.

Idea application. Ctrip frequently organizes internal innovation project teams to innovate in a *formal/structured development process*, rather than a haphazard process. Ideas of 'One Hour Trapeze Channels' and 'Transparent Tour' are then developed by innovation project teams. Ctrip has a group of specialists in psychology, costumer relationships and data analysis to ensure the *efficiency of the development process*. These experts directly execute some service innovations in the form of a project team. The experiment of 'Working from Home' is an example that these experts directly participated in (Bloom et al., 2015). In this experiment, they took the responsibilities of selecting home workers, managing their emotions and evaluating their performance. When the innovative ideas have potential to induce radical service innovations or totally new services, also top managers are involved in the idea application processes. For *launch proficiency,* Ctrip has established an innovation training platform. As Ctrip introduces new services frequently, on-going training are required for employees in some customer-contact sections such as call centers (Bloom et al., 2015).

2.5 Discussion

In this section, the results of Ctrip's case study are firstly summarized, regarding the framework and related components of online travel service innovation management. The contributions and limitations of this framework are discussed respectively in the next two subsections. This article ends with a conclusion.

2.5.1 Summary of findings

The research is designed and carried out to generate a model of online travel service innovation, which can be analytically generalized. Based on the case of Ctrip, through reframing the NSD framework structure of Johnson et al. (2000), we devise a framework with related components for OTAs to managing their online travel service innovations (see Figure 2.4). Compared with service innovation's dimensional models (den Hertog, 2000; den Hertog et al., 2010) and frameworks viewed through a S-D logic lens (Ordanini and Parasuraman, 2011; Lusch and Nambisan, 2015), our framework takes the process of service innovation into consideration, i.e., the general ideation process rather than the NSD
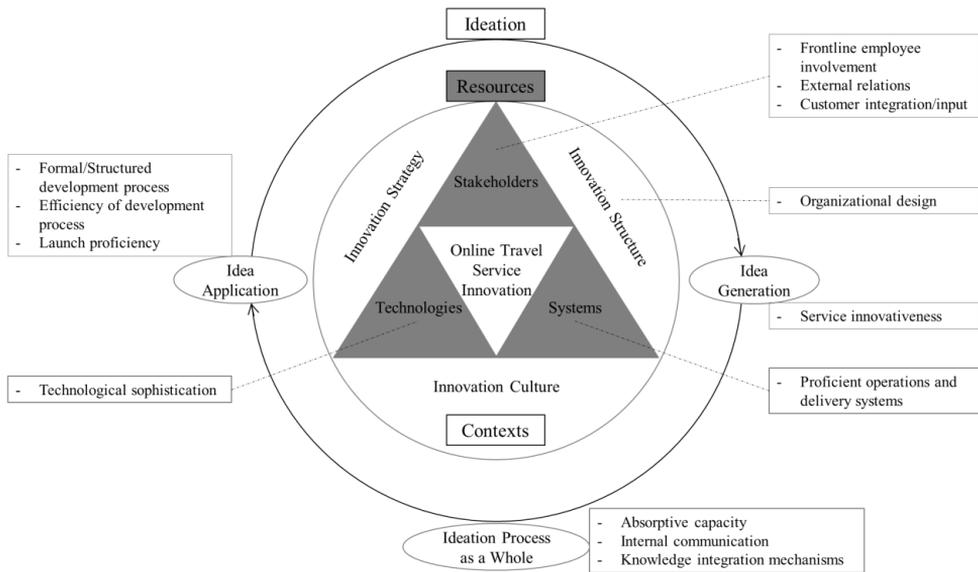
process of Johnson et al. (2000).

Figure 2.4 Framework of online travel service innovation management

Our framework consists of three facets which should be considered by management namely (1) resources of service innovation, (2) contexts of service innovation and (3) ideation of service innovation. We integrate the key success factors summarized by a recent meta-analysis of Storey et al. (2016) into our model, by categorizing these factors into the three facets of resources, contexts and ideation.

Compared with the NSD framework of Johnson et al. (2000), this tripartite framework presents several changes. First, we combine two enablers (i.e., people and team) of Johnson et al. (2000) into *stakeholders* as an element of the first facet, i.e., resources (Smith and Fischbacher, 2005). The original technologies and systems remain intact in our restructured framework. A strong technological base seems to be a prerequisite to good service innovation performance in most services (Hollenstein, 2003). This study shows that this is also the case in the context of online travel services. New technologies, especially the Internet, have a major impact on online travel services. Proficient delivery systems are vital for successful standardized services and processes (Dotzel et al., 2013), such as online travel services on which this study focuses. Second, we claim that tools are a part of systems. In our new framework, we integrate the enabler in the original framework into systems, and define the systems broadly. Third, we extend the scope of the last original enabler in the NSD framework (i.e., organizational context) into three elements: innovation strategy, structure and culture. These three success factors are discussed separately by the

meta-analysis of Storey et al. (2016). Fourth, we replace the NSD process by the facet 'ideation of service innovation': idea generation and idea application, as NSD and service innovation have been regarded as two distinguished concepts (Snyder et al., 2016; Witell et al., 2016). The activities related to each stage of the NSD process are removed accordingly, with key success factors attached in each element.

Following our framework, we classify these key success factors of service innovation from Storey et al. (2016) into the three facets and related subgroups of elements (see Table 2.4).

Table 2.4 Classification of key success factors of service innovation

Facets	Elements	Success factors (rank order) [a]
Resources	Stakeholders	- Frontline employee involvement (7) *
		- External relations (7)
		- Customer integration/input
	Technologies	- Technological sophistication
	Systems	- Proficient operations and delivery systems *
Contexts	Innovation strategy	- Innovation strategy (4) *
	Innovation structure	- Organizational design (3)
	Innovation culture	- Innovation culture
Ideation	Ideation process as a whole	- Absorptive capacity (2)
		- Internal communication (9)
		- Knowledge integration mechanisms *
	Idea generation	- Service innovativeness (6)
	Idea application	- Formal/Structured development process (9)
		- Efficiency of development process (5)
		- Launch proficiency (1)

[a] From Storey et al. (2016). Only rank orders of top 10 success factors are shown.

* Success factors specific for service innovation, not for product innovation.

2.5.2 Theoretical and managerial implications

This study offers a first step towards the investigation of service innovation management at Chinese OTAs. We develop a management framework with three facets (resources, contexts and ideation) to understand and interpret this phenomenon. Based on our research findings, we present an analytical model that can be used as a point of departure for future research on online travel service innovation. Instead of looking at individual success factors, scholars and practitioners should take a holistic view of online travel service innovation management. This proposed model is potentially applicable to other industries, as all its components are basically constructed in general terms and at a generic level.

Our research has significant theoretical implications. First, we extend the research on online travel service innovation by uncovering the detailed components of OTAs' service innovation management, in the context of emerging economies (specifically in China). Second, our tripartite framework illuminates what factors linked to specific elements of service innovation are needed to foster successful service innovations. These three facets, elements and related success factors serve as the components of service innovation management in the framework. Third, we concern the ideation process of service innovation rather than an NSD-style process. This view emphasizes the general processes that apply to a variety of service innovations. Fourth, based on western innovation theories, we conclude the findings from the perspective of Eastern/Chinese practices. The restructured model offers new insights and understanding in the domain of service innovation research, in the Eastern region; more specifically, in China.

This study has several implications for practitioners in the online travel services and perhaps other IT-based segments of the tourism industry, which plan to increase their understanding of service innovation management. Firstly, managing service innovation is a complex endeavor and multifaceted challenge, to which our framework can contribute. The framework provides practitioners with a structured approach to manage online travel service innovations. Successful innovating OTAs like Ctrip are working on systematic service innovation management, instead of a haphazard approach.

Secondly, these facets, elements and success factors are just basic components of successful service innovation management in online travel services. The proportions of these components vary in different OTAs. OTAs are expected to develop their idiosyncratic service innovation models. Therefore, it is difficult and undesirable for them to replicate a firm-specific mix and composition of the components of service innovation management. Simply copying and implementing a service innovation model from other OTAs without adaptation seems not enough to become a sustainable and successful service innovator. For example, Ctrip learns from other OTAs such as Expedia, but develops its own model of service innovation management.

Thirdly, the success factors related to each facet and element provide managers insights into the aspects on which to focus in their innovative efforts for successful service innovations. These success factors of service innovation (e.g., technological sophistication) may not seem critical for every single service innovation. Some Ctrip's service concept innovations, for instance, do not rely on any sophisticated technology. But, for the long-term development of a series of successful service innovations, it is important to pay attention to each success factor.

2.5.3 Limitations and directions for further research

The findings of this research have several limitations that also indicate opportunities for

further research. First, this study is based on a single selected case. The studied sample is a large-sized OTA. The findings presented here are not statistically generalizable, and, have limited analytical generalizability. The developed framework can be of value to analyze OTA's that are comparable to Ctrip. A similar research study could be undertaken at small- to medium-sized OTAs to elucidate the differences and similarities between the service innovation management of OTAs with different characteristics, and specifically the impacts of success factors in different size categories.

Besides, our sample is restricted to one emerging economic. The specific context of the Chinese online travel services might limit the analytical generalization of our framework for other geographical areas or industries. A cross-cultural or cross-sectional study could also be considered using a wider population and multiple OTAs/industries in various countries with different cultures. In addition, by exploring the Chinese service innovation practices, we further develop and refine the theoretical framework. However, some unique Chinese-specific components of service innovation management might be inevitably overlooked, because the more western centric nature of the service innovation models still forms the basis of the previous and also this empirical study. Cautious further research can be conducted to study China's indigenous innovations in a Chinese-centric approach (Alon et al., 2011; Vinig and Bossink, 2015).

Furthermore, our understanding of the interactions between service innovation elements as well as the associated integration mechanisms is weak. This understanding is related to how OTAs integrate these elements as an entire management mechanism. Further research could explore such interactions and integration mechanisms in depth, to provide useful insights by unraveling how OTAs learn and adapt their integration mechanisms over time.

2.5.4 Summary and conclusion

This study has shown the inherently complex nature of service innovation management in the context of online travel services. In the literature, Johnson et al. (2000) develop an NSD framework; and a meta-analysis of Storey et al. (2016) indicates the success factors of service innovation. Combining these theoretical bases, we conduct an in-depth case study of Ctrip, the largest OTA in China, to explore its management of online travel service innovations. The case of Ctrip inspires us to devise a framework of managing online travel service innovation at OTAs, to address the following research question: *What are the components of service innovation management for OTAs?* Our revised tripartite framework consists of three management facets: (1) resources of service innovation, including elements of stakeholders, technologies and systems, (2) contexts of service innovation, including elements of innovation strategy, structure and culture, and (3) ideation of service innovation, including elements of idea generation and application. We integrate the success factors of service innovation into a restructured model, and categorize them into these three

facets and related elements. To the best of our knowledge, this study is the first to offer a research-based model that enables further studies on service innovation management in (specifically Chinese) online travel services. Our model provides practitioners with a structured approach to managing online travel service innovations, which appears to be a complex endeavor and multifaceted challenge.