

Designing Innovative Service System for Seniors in Hospitality Under COVID-19

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Abstract

COVID-19 profoundly impacts the global economy and has dealt a fatal blow to the hospitality industry. The hospitality industry has long seen seniors as a heterogeneous group with significant potential since they have more available time and sufficient savings, but this pandemic has altered their behaviors and needs. A great number of studies focused on the impact of the epidemic on hospitality management and economic development. However, there is still an unignored gap in adapting service processes and provisions for a particular group in hotels. As an interdisciplinary way, service design can help the hospitality industry identify customers' needs and build a new service system to strengthen hotels' competition. Therefore, the study uses the qualitative method-interview with to examine what services and how the change service system will be more suitable for seniors and hoteliers in COVID-19. The authors also adopt service design tools—service blueprints—to unveil the views of seniors and propose an innovative service system in hotels.

Keywords: COVID-19; hospitality; seniors, hotels; service design

1.Introduction

In the last decade, the hospitality has been labor-intensive industries with profoundly influences on economic development, employment opportunities, poverty alleviation, and foreign currency inflows worldwide (Davahli et al., 2020; Kukanja et al., 2020; Sobaih et al., 2021; Song et al., 2021). However, since the end of 2019, China has been the first country to suffer COVID-19. The hospitality industry, which is a significant pillar in China, has been the hardest hit until now (Lu et al., 2020; Kaushal & Srivastava, 2021). Unpredictable lockdown, movement restrictions, travel bans, and other policies are incredibly challenging to resilience and recovery abilities of the industry (Filimonau et al., 2020; Gursoy & Chi, 2020; Sobaih et al., 2021). The industry faces more mass layoffs, financial pressure, and business closure than other industries (Kim et al., 2021). Moreover, Hao et al. (2020) argued COVID-19 has permanently and substantially affected the main aspects of China's hotels, including product service offering and delivery. Although the epidemic has gradually become a normal situation and the social alertness has dropped compared to the initial, it's still hard for the hospitality industry to recover in short-term, even reopening the hospitality will not attract customers to purchase immediately (Shin & Kang, 2020; Song et al., 2021; Jones & Comfort, 2020). Therefore, academics developed many theories as external supports to address this hard time, such as CMPs (crisis management practices) and learned from previous emergencies experience (SARS) (Hao et al., 2020; Kukanja et al., 2020; Lai & Wong, 2020), but this time is not confined to one region as it was before. As Kaushal and Srivastava (2021) stated the entire world has been holding hostage to this pandemic and customers don't have alternative disposal, and activities and leisure sectors have come to a standstill, so there is little point in

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merely drawing lessons from the past (Lai & Wong, 2020).

Customers in the hospitality industry are a broad group with various behaviors, motivations, expectations, abilities, and experience (Brinker & Cain, 2011; Pederson, 1992). For the whole market, seniors are a commercially and academically worthy subject. Firstly, China is one of the fastest-growing aging populations in the world and the population of people over 60 years old is projected to reach 28% by 2040 (WHO, 2018), so seniors are an important segment in the hospitality with increasing demographic in China. Secondly, in the term of business, the hospitality has gradually viewed older adults as a dynamic growth group with more available time, little economic pressures, and high purchasing power than other age groups (Alén et al., 2017; Caber & Albayrak, 2014b; Pederson, 1992; Santos et al., 2016). Future retirees will be wealthier, healthier, and more active, so the hospitality and service managers must adopt specific strategies to serve this segment (Marvel, 1999; Teng et al., 2021). Thirdly, in term of academic research, based on needs and heterogeneity for tourists and customers, more scholars advocate dividing seniors as an independent and noteworthy segment due to degradation of physician and psychology (Tsitsiloni et al., 2013; Xiang & Fesenmaier, 2017). Callan and Bowman (2000) also argued don't treat elderly market as homogeneous, but recognize its heterogeneity and attempt to design service provisions to appeal to their needs. Rudchenkov and Volkova (2021) stated the challenge for hospitality management is to explore the preferences of seniors segment and based on them to deliver services satisfied with its needs. Noticeably, this epidemic changes to stimuli altering customers' behaviors, including their expectations and experience in unfamiliar environments and it's not same as before (Awan et al., 2021; Sobaih et al., 2021). Currently, the health risk is a primary concern for customers when they decide to visit or stay in hotels; also, people above 60 or with underlying physical chronic diseases are more vulnerable and susceptible to infection (Shin & Kang, 2020). Therefore, all the above negative information negatively influences seniors to stay in hotels.

Shostack formally introduced the term "Service Design" in 1982, which made early contributions to service design in the form of books and articles. As Hillions (2006) stated, service design is a profession related to improving the experience that customers receive from a service provider. Service design competence must rely on understanding customers' needs, behaviors, satisfaction, and service design tools (Ahmad, 2022). So far, many scholars have further evolved service design and repeatedly practised it as an interdisciplinary method in entertainment, tourism, engineering, hospitality, and other industries (Hefley & Murphy, 2008; Lepre, n.d.; Tussyadiah, 2014). Kozak and Gurel (2015) argued that service design is also crucial for hotels to maintain internal growth by increasing quality product diversity, designing new services that adapt to different markets, or starting existing service processes.

The evolving pandemic is a lasting economic risk that directly results in hotels' occupancy rate and income, whether luxury, independent, midscale, or economic chains (Hao et al., 2020). According to the latest statistics from the Chinese State Council reported on March 25, 2022, 212.152 million people over 60 had completed full vaccinations. However, the hotels with the past operation pattern and service provisions cannot dispel seniors for secondary infection concerns. Thereby, this research aims to develop a new service process in hotels for elderly groups through service design in the context of COVID-19 to provide practical enlightenment for the hospitality industry to investigate the behaviors, needs, and expectations of seniors and explore sustainable service process when health crises occur again in the future.

1.1 The hospitality in COVID-19

Given the increasing travel restrictions and the psychology of concerns in public, the

pandemic has dealt a crippling halt on diverse activities, investment, and revenue channels in hotels (Lai & Wong, 2020). It is less likely that a quick recovery will occur, and how hotels can survive post-COVID-19 remains unknown, so hoteliers are supposed to use this chance to get stronger if some breakthroughs and measures are considered in this tough time (Awan et al., 2021; Davahli et al., 2020; Gursoy & Chi, 2020). Extensive literature focuses on the negative impacts of this pandemic and attempts to construct theories that can be assigned into four categories: crisis management practices (CMPs), hygiene and sanitation, SMEs' resilience ability, and impacts of the pandemic (Awan et al., 2021; Davahli et al., 2020; Filimonau et al., 2020; Gursoy & Chi, 2020; Hao et al., 2020; Jones & Comfort, 2020; Kim et al., 2021, 2021; Shin & Kang, 2020; Sobaih et al., 2021; Song et al., 2021). Hao et al. (2020) developed a framework to implement CMPs in the anti-pandemic phases, principles, and strategies and stated that restoring customer confidence through providing contactless service provisions is critical. Kukanja et al. (2020) adapted exploratory factor analysis, Kruskal Wallis H test to examine 27 crisis management practices in SMEs like lodging facilities and F&B facilities and revealed that SMEs primarily focus on workforce, cost control, organizational support, and promotional and customer-related marketing practices. Lai and Wong (2020) classified four executable strategies. They conducted them in the initial and pandemic stages of COVID-19 in Macau, which unveiled pricing and maintenance, governmental assistance, and human resources should be priority applied to the initial stage. However, government assistance is a low priority, and hoteliers tend to transfer pressure on employees or postpone their system maintenance. COVID-19 is a highly transmissible respiratory disease, which spreads through contact with other infected individuals and physical facilities, so improving hygiene and sanitation is essential for hotels currently (Teng et al., 2021). Awan et al. (2021) proposed that "cleanliness is half of faith," like effective hygiene measures in brand promises, and stressed service design can create a tourist service ecosystem. Regarding developing contactless interactions in COVID-19, Kim et al. (2021), Gursoy and Chi (2020) stated that customers demonstrated more positive attitudes towards robot-staffed than before, and good practices and safety measures social distance are effective protocols in alleviating the risk of pandemic transmissions. Sobaih et al. (2021) revealed that planned and adaptive resilience directly influences sustainable development in tourism and hospitality and indirectly influences performance. Filimonau et al. (2020) indicated from the view of employees that the organization's resilience and managers' response to COVID-19 in hotels would influence their job security and commitment as host organizations. Besides the above topics, many studies analyze the epidemic's impact on hotels, which all mention the negative impacts of the pandemic on commercial profit, human communication, and wide-range lay-off (Jones & Comfort, 2020). Gursoy and Chi (2020) reviewed the current situation and stated that hospitality is expected to make sustainable changes to ensure both employees' customers' safety and loyalty. Jones and Comfort (2020) expressed that COVID-19 exposed some fragilities between humans and nature, highlighting the leverage of this crisis to sustain industry development and balance various niches between stakeholders. Davahli et al. (2020) reviewed topics on different aspects of hospitality and main topics are related to resilience and recovery of the industry (19%), but customers' behaviors and preferences are the lowest at 4% and 2%, respectively.

1.2. Services in hospitality

One of the basic definitions of the hospitality industry is offering customers courteous, professional food and lodging services. Novel and unique services are a competitive products and how to providing service that customers want and expectations has always been a challenge for all hotels (Tang et al., 2015). Service has a wide range meanings, according to Zehr (2009), Brinker and Cain (2011) stated, a common meaning is service as the intangible part of

transaction relationship that creates values between provider organizations and customers with intangible, perishability, heterogeneity, and simultaneity features. Service concept involves prototype of service, covering the needs of customer and designing of service (Victorino et al., 2005). Service design is an effective method that assigns the values and reputation for hotels that have arose recognition, but the intention of service design as a distinctive discipline with its own principles and methods is a new start (Stickdorn & Zehrer, 2009). Service design has gained profound research in hospitality from Zehrer (2009), which proposed conceptual views regarding the relationship between service design and customer experience in SMEs and also stated service design must be adopted and undertaken in a holistic manner involving in organization culture of firms and underlined “service blueprint” is a great tool that firms can reduce costs, maximize customers’ and employees’ satisfactions, and support decision management with limited resources. Stickdorn and Zehrer (2009) argued stages are in service design process: 1). the initial stage mostly explores analyzing present products and customers; 2). demonstrate customer segments visually through service design tool persona; 3). the latter stage refers to possible service touchpoints in hotels that subsume the terms of time, space, and topics. Tussyadiah (2014) mentioned service design has been applied to explore and define unarticulated problems associated with service delivery and address problems in an innovation way in hotels. Notedly, these papers all expressed existing service design tools, such as service blueprint, mapping, customer journey, interviews, and observation techniques, can gain customer insights and exert great energy and in service-oriented dominant industries like tourism and hospitality. As Kozak and Gürel (2015) argued, customers as ultimate users of the service need to consider their desires, needs, behaviors, experience as significant factors in the process; also, employees have a significant role in the system due to interacting with customers as the meanwhile in hotels. Victorino et al. (2005) did a quantitative survey in the United States, including 1000 travelers are segmented as business or leisure through travel intentions by discrete choice analysis applied to the model preference of customers for service innovations in various hotels. They stressed service innovation plays a different work in hotels development, identified customer needs, and understood customer tradeoffs through innovations and market-oriented firms. But their research on consumers only considers two intentions (business or leisure), ignoring the division of the physical evidence of the group and limiting considerations on the long-term impacts of service innovation. From the employees’ views, Tang et al. (2015) investigated knowledge sharing mediated the effect of social capital on service innovation capability and mechanized for transforming the innovation potential of social capital into actual service innovation capability. In conclusion, whatever from the concept and utilized tools in service design, it is a positive and practical approach that can remain the competitive abilities for the hotels and improve the value and for loyalty of customers and employees. However, contents and methods for applied service design in hotels require exploring is scant, that is, the “what” and “why” in service concept (Brinker & Cain, 2011; Kozak & Gürel, n.d.; Tang et al., 2015; Victorino et al., 2005).

1.3. Seniors in the hospitality

Seniors segment is becoming an important market and prefunding business field in the hospitality industry because they have more flexible time and high purchasing power (Wei et al., 1999). As early as 1992, Pederson proposed that there would be great changes in the behavior patterns of seniors for coming years. Seniors are heterogeneous with differentiated wants and expectations for service, so the hospitality industry must continue to study and analyze the characteristics and behaviors of seniors because aging alters customers’ needs (Alén et al., 2017; Callan & Bowman, 2000; Huber et al., 2018). The United States released the Americans with Disabilities Act in 1992 have aided in hotels preparing for an aging market, in which required all public facilities and assisted rooms to be made accessible to people with

physical disabilities, then above 90% of hotels did adjustment (Marvel, 1999; Pederson, 1992). This act is a symbol of the hotel market's attention to the needs of seniors, and its promotion helps seniors better use public facilities and integrate into the public environment. Pederson (1992) indicated that hospitality must recognize the characteristics, new products, and services the mature market demands. He also stated hotels need to consider age-related dietary restrictions, and menus should continue the interest in nutrition; meanwhile, hospitality needs to increase medical assistance available for elderly guests, such as collaborating with continuing care retirement communities in structure. Marvel (1999) evaluated the specific products and services in hotel chains for seniors, including a few intangible services like luggage service, F&B service. But he considered more about architecture and design features for facilities like avoiding confusing shadows, color schemes for poor eyesight. In addition, Marvel (1999) stressed hotel staffs need avoid using "seniors" or "elderly" when they interact with elderly guests. Wei et al. (1999) examined seven attributes (price, location, facilities, hotel restaurant, room furnishings, front-desk efficiency, staff attitudes) in three-to-five hotels from the older people's perception views and revealed the facilities are the most important attribute, followed by room furnishings. He pointed that given this group's heterogeneity, knowing good service and products that older customers are demanding and essential for increasing competition in hospitality. Albayrak et al. (2016) examine the asymmetric impacts of hotel attributes on the satisfaction of older adults from the UK and Germany by using the importance Grid method and defining the attributes into three factors: basic, excitement (attractive), and performance. He indicated the absence of the excitement factors of seniors and the most priority for business should seek specialist products and services for older people to fulfill their current requirements. At present, studies on identifying attributes impact seniors selecting hotels and importance of service provisions are dearth, and generally limited to one market but not consider possible market difference (Caber & Albayrak, 2014a). Seniors prefer to the services which are comfortable and fulfill their needs and expectations instead of the most expensive accommodation (Rudchenkov & Volkova, 2021). Seniors are discerning customers who are lucrative and stable market for hospitality, it is first necessary to understand their important expectations and desires (Callan & Bowman, 2000). The author needs to emphasize common points here that the topics related to hotels and seniors all mention that their needs, behaviors, expectations are the most important (Caber & Albayrak, 2014a; Callan & Bowman, 2000; Lee et al., 2012, 2012; Marvel, 1999; Pederson, 1992). However, most articles concentrate on adjusting physical facilities for seniors, but studies are insufficient on intangible services which are the critical to help the hotels strengthen its competitiveness (Kozak & Gürel, n.d.). Pederson (1992), Caber and Albayrak (2014a) have long stated personal characteristics and lifestyles of seniors have already changed considerably. Not to mention COVID-19 is devastating hotels and transforming behaviors of human behaviors. Although the pandemic may fade slowly, a lot of it will be psychological continuously, so it is a pressing need for the hotel industry to revamp its service design, define new normal for customers and make the business develop sustainability (Awan et al., 2021).

2. Methodology

The nature of this research is exploratory, which aims to unveil what services will be more suitable for seniors in the hotels, and how the hotels can, according to the needs and expectations of seniors, improve their service process in the COVID-19. When the previous research is insufficient and identifies existed underlying phenomena, a qualitative study is particularly suitable for analyzing complex contexts and meaning (Awan et al., 2021). Interview is the most primary qualitative technique due to its low cost, the richness data, and also enables substantial interaction with respondents to gain insights from their attitudes, values

and understand their behaviors (Hsu & Huang, 2016; Ramos-Soler et al., 2019).

Kozak and Gürel (2015) reviewed the concept of service design in hotels and stated the idea generation should be from the views of managers and customers, who are service providers and receivers. Hence, the authors conducted interview for both sides, seniors, and hotel staffs, respectively. On the one side, the criteria for selecting interviewees are over 60 years old, which referring to Yang (2014) stated that in China, people over 60 years old can retire and draw the pension, simultaneously WHO (2018) calculated that the population of people over 60 years old is projected to reach 28% by 2040 in China.

2.1 Sample profile for elderly interviewees

The authors selected sampling in Jiangsu, China. The reasons for selecting this region are threefold. First, in 1986, Jiangsu province entered the ageing society 13 years earlier than the country. According to the latest data of the seventh national population census, the ageing of Jiangsu province is 21.84%, which has exceeded Beijing (19.63%), and is slightly low to Shanghai (23.38%), and has become an area with obvious ageing development in recent years. Secondly, according to the report of Xinhua News Agency (Zhong et al., 2020), the proportion of seniors aged 60 and above suffering from chronic diseases in Jiangsu is 77.4%. The proportion of seniors aged 80 and above suffering from chronic diseases is 85.3%, a big gap between seniors' health services and the demand. Finally, according to the latest National Bureau of Statistics announcement, Jiangsu ranked second in the country in terms of domestic tours organized by travel agencies in the fourth quarter of 2021 (15 %), next only to Zhejiang (16 %). In some parks, activity centers, squares, and other areas where seniors often gather, the authors invited seniors to participate in the research by distributing brochures. In addition, the authors found hotels' websites and made cold calls to their outside communication departments to invite them to cope with the emergency and ongoing crisis since COVID-19.

The authors first conducted two group discussions of ten seniors as the hotel customers to further analyze their heterogeneous perception and reception of services. The socio-demographic information of the ten interviewees is as follows in Table 1.

Table 1. Social demographic information for elderly interviewees (No.=10)

Attributes	Details	Number
Gender	Male	6
	Female	4
Age	≥60	5
	≥70	3
	≥80	2
Marital status	Never married	0
	Married	7
	Divorced	1
	Widowed	2
Parental status	Grandparent	6
	Parent	4
	No children	0
Employment	Retired	7
	Part time	2
	Full time	1
Motivations	Travel	5
	Job demanded	0
	Visit relatives	4
	Others	1
Number of hotel visits before COVID-19	≤2	2
	2-5	5
	≥5	3
Number of hotel visits since COVID-19	≤2	6
	2-5	3
	≥5	1
Money for one night (CNY)	≤200	1

200-500	4
≥500	3
Uncertainty	2

(CNY=Chinese yuan)

To gain more systematic and accurate information, except for their free discussion of related topics we also draw on customer journey to guide the seniors to recall the experience of interacting with hotels and explain their views. The customer journey is critical to reveal the touchpoints sequence from the perspective of customers to allow a holistic analysis, which then can be aggregated and analyzed to identify in detail the strengths and weaknesses of touchpoints and enable service orientation on destination level (Stickdorn & Zehrer, 2009). The authors made a blank table of customer journey, guided interviewees to communicate and express opinions to complete the table, while the authors recorded and observed on the side, which can be shown in Figure 1.



Figure 1. Senior center employees helped sort through the interviews

2.2 Sample profile for hotel staff

In service design, we need to pay great attention to the touchpoints connected with different roles, including firms, customers, and stakeholders, where these service encounters took place (Kimbell, 2011). Hence, after the authors collected data from elderly interviewees, we later started two focus group discussions (A&B) with the hotel staff. The discussion was divided into two parts. Firstly, the authors provided customer journey completed by elderly interviewees to help them review their service provisions and process explicitly from customers' views, including actions, process description, emotions, feelings during the whole process, and opportunities customers took to adapt. Furthermore, interviewees were inquired about their views and measures taken for future sustainable development in the senior market in COVID-19. Personal information about the interviewees in the hotel staff is presented in Table 2.

3. Results and data analysis

3.1 Providing customized service to meet the heterogeneous elderly group

Brinker and Cain (2011) indicated that well-managed hospitality organizations must satisfy each of the customers it seeks to serve in their target market and adapt what it does to account for the changes in expectations, wants, needs, and capabilities of those customers may have from a visit to visit. In the whole consumer market, seniors is the most heterogeneous

with distinct needs, affected by factors such as state of retirement, age, physical and mental condition, and surroundings, and value for money and tailored services are priority factors for them to consider (Albayrak et al., 2016; Alén et al., 2017; Caber & Albayrak, 2014a; Marvel, 1999). Hotels' investment should focus on predicting individual preferences and providing customized services through digital devices, which can significantly improve their experience (Fang et al., 2017; Hao et al., 2020). Apparently, for older adults, they do not think their needs are being met or taken seriously, and their desire for customized service is keen, as explained by two elderly interviewees and one hotel interviewee:

Table 2. *Profile of respondents from hotel staff*

Group	No.	Gender	Age	Working (YR)	Department	Job Duties (PS)
A	1	F	45	23	FOM	1). Review reports daily. 2). Keep track of room reservation and sales status. 3). Ensure the efficient operation of all positions in the lobby and maintain the cleanliness and order. 4). Coordinate and liaise with relevant departments in time and make good communication. 5). Train staff on check-in and receive important teams and guests in person.
	2	M	32	11	CON	1). Welcome customers and introduce guests to front staff in the lobby. 2). Assist guests to check their luggage to the rooms. 3). During the coronavirus period, concierge will also need to verify the health and travel codes of visitors to ensure that those who enter the hotels are not infected with COVID-19.
	3	M	50	20	BC	1). Responsible for investment, and development of business service or products. 2). Provide forward-looking advice on the hotel's performance and future direction.
	4	F	41	19	HSKP	1). Contact and coordinate with all departments serving the front line. 2). Timely report the guest room situation. 3). Handles services and products required by guests in the room.
B	1	F	28	5	RECP	1). Help customers check in and check out. 2). Communicate with customers and inform relevant departments of customers' needs.
	2	F	53	25	DOM	1). Coordinate and arrange the business status of various hotel projects, including occupancy rate, F&B, service, and facilities promotion, etc.
	3	M	33	10	CRM	1). Maintain and develop long-term relationship with customers. 2). Focus on customers' attitudes and behaviors towards the hotel in real time. 3). Mainly responsible for improving users' loyalty and trust to the through the transmission of corporate image.

(YR=years; PS=personal statement; F=Female; M=Male; FOM=Front office manager; CON=Concierge; BC=Business center; HSKP=Housekeeping department; RECP=Reception; DOM=Director of sales & marketing; CRM=Customer relationship management.)

As I get older and older, living in a hotel is a big challenge to my lifestyle. I like to sleep on high pillows, or I cannot fall asleep. I also have diabetes and need to cut out sugar. The food in the hotel is not suitable for me. It's all young people's favorite food (Male-68).

I really want the hotel staff to realize that I don't care how gorgeous my place is, I just need something that I can rest assured about. COVID-19 has increased my health anxiety. Can they provide me with more disinfecting tools? I must pay the deposit and room fee without judging whether the hotel can take good care of me. I pay the same as young people, but I feel

the experience is very bad (Femle-72).

We always ask seniors what services they need, and they are always afraid to bother us or just say they have no needs, but they often say that they are not used to living in hotels with people around, which is our biggest trouble...(D-3).

3.2. *Re-designing "service" for the hotels to deal with COVID-19*

Hoteliers need to manage to re-design their services and look for executive strategies to align them with the changing dynamics of the industry when coping with COVID-19 (Awan et al., 2021; Lai & Wong, 2020). Hao et al. (2020) and Davahli et al. (2020) concluded service provisions are the main response, and the pandemic significantly affected customers' behaviors for private dining facilities. Under the epidemic situation, customers tend to prefer contactless services, while many seniors feel tired of the check-in process in the hotel lobby and worry about the spread of the virus because of the clustering. Some hotel staff also feedback that, on the one hand, they hope to adopt contactless service, but they are confused about how to let customers accept service in an online way:

As consumers, I will feel psychological pressure when we decide to stay out. But the hotel only takes the money, they do not care me from booking to leaving the hotel... (Female, 66)

Every time I wait in line in the lobby to check-in, I feel exhausted. COVID-19 requires a social distance of one meter. That line seems too long. Why can I book and pay for my room online but can only check in offline? Why can't I tell them what I need ahead of time. (Male, 80; Female, 69)

We should develop a new check-in way with an online option and more flexible services. During the epidemic, I was tired of having to serve too many customers by putting my mask on, working at the front desk is almost universally recognized as one of the riskiest positions. (A-1)

Our hotel slogan has always been "We look forward to you!". We want to make our elderly customers know that we look forward to serving them, but how this translates into our products and services has been a problem in the post- epidemic era. (A-2/B-3)

Therefore, hoteliers need to set up a new service process to deal with special risks and give customers more choices when interacting with the hotels in COVID-19. The service system aims to provide an overall conceptual framework that understands development and function and how it can be optimized between frontstage and backstage (Kansa & Wilde, 2008). Here, the service blueprint (Figure 2) will be provided explicitly, and heuristic values for roles included in this process and understand how the front and back respond and cooperate behind services.

3.3. *Adopting ICTs to assist hotels and seniors for better interaction*

According to Kansa and Wilde (2008), Information Communication Technologies (ICT) are vital drivers for mass customization in the hospitality industry that aims to satisfy individualized needs and expectations, assisting customers to directly interface with the backstage process to reshape recast the front-stage experience. Mobile applications can communicate with consumers more effectively and barrier-free than web pages based on computers. Xiang and Fesenmaier (2017) argued that customers' tasks in the on-trip and post-trip stages are now increasingly fulfilled before they depart due to the pervasive connection to

the internet using the smartphone, which also directly leads to new patterns of service and customers' behaviours decisions. In the context of COVID-19, many service interactions have intensified the health concerns of customers and hoteliers, and people are inclined to develop and leverage new patterns that are integrated with ICTs soon (Kim et al., 2021). Some respondents also expressed the following:

I'm used to reserving hotels and rooms before I go to a destination, but I think the hotel booking function is limited to just paying and choosing dates, could there be more communication with them through the app? (Female, 82; Male, 68)

I like to stay in hotel chains because there is a mini-app or app to learn more about the hotel and its services. But do they have any new services during the pandemic? For example, I have a chronic illness, will they remind me to prepare my luggage and medication before my departure through the applet message? (Female, 66; Male 68&73)

I think I'm already their guest when I pay online, not I'm their guest when I arrive at the hotel, right? (Female, 69)

Our hotel launched our APP in 2016, which users can open easily via WeChat. We also want to achieve online check-in and service confirmation through the APP, but how to arrange it is the biggest problem... (C-3; D-2)

Online products that help consumers communicate with hotels and the implementation of services are the ideas that most of the interviewees concentrated on expressing. However, in the COVID-19 situation, using technologies to deliver warm services is the breakthrough needed in hotel service.

Designing a service delivery system should encompass people's roles, including service providers, technologies, physical evidence (facilities), and specific processes by which service is created and delivered (Goldstein et al., 2002). Shostack (1982; 1984) was a pioneering advocate that services could be designed intentionally, proposing a visual presentation called a "service blueprint". Now service blueprint is a powerful and symbol tool in service design to show what happens in front of the customer engaging with service personnel and service "evidence", and behind a "line of visibility" to distinguish frontstage and back-stage (Kimbell, 2011). Based on the analysis of all the above data from focus group discussions, the authors propose a service blueprint to illustrate the new service system in Figure 2 that hotels can implement for seniors during COVID-19.

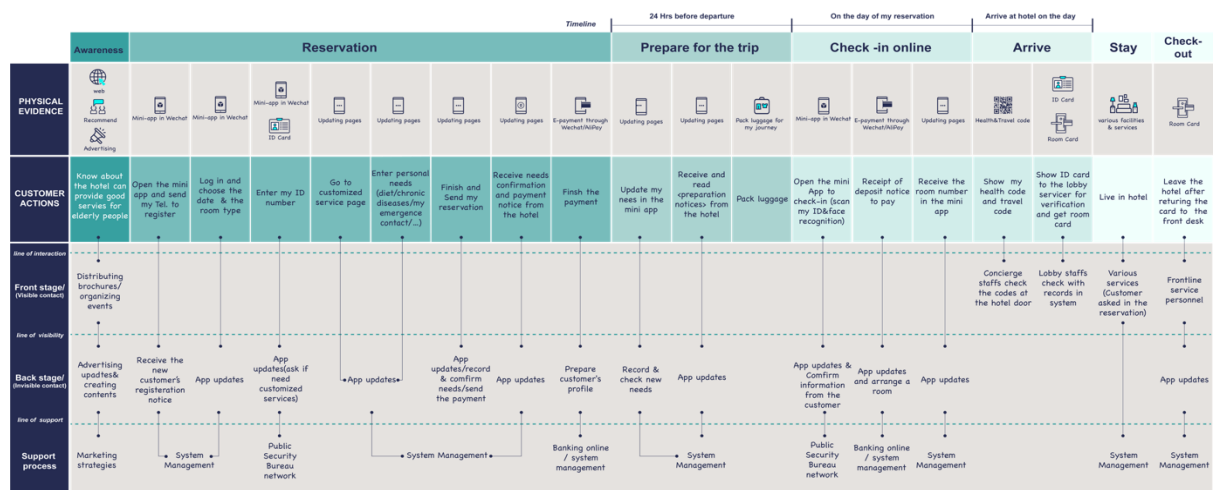


Figure 2. *Service Blueprint – A new service process proposed by integrating data analysis*

4. Discussion

Service design has received a certain degree of academic attention and practice in tourism as an interdisciplinary approach (Lepre, n.d.; Stickdorn & Zehrer, 2009; Tussyadiah, 2014; Zehrer, 2009). However, research on it is very scarce for hotels with intensive services. Through documenting and monitoring with all interviewees and analyzing data, the service blueprint of the hotels provided to elderly customers proposed in this study is significantly different from the previous way of interaction between hotels and elderly customers. This study divides the contact between seniors and hotels into some periods, like awareness, reservation, preparation for the trip, check-in online, arrival, stay, and check out. The new service flow chart has been verified and communicated with our respondents to ensure the feasibility of the study findings.

4.1 Awareness

Providing routine services like competitors is impossible for a service business to stand out, but new services are the best medicine to strengthen the competitive position of service business (Brinker & Cain, 2011; Kozak & Gürel, n.d.; Marvel, 1999). Therefore, this study proposes that hotels advertise new services to attract elderly groups interested in their new operation mechanism during the COVID-19 period. Seniors know about the new service patterns of the hotel through multi-platform publicity. In contrast, the hotel needs to cost and effort to make market strategies and provide resources or content that can effectively reach potential elderly customers.

4.2 Reservation

The new service flow suggests that the services for customers should start with the reservation rather than arriving at the destination. Through mini app in WeChat, seniors can not only select the date and room types but also customize their distinct needs or update at any time. When elderly customers are listing their needs online, the hotels can confirm whether they can serve their guests, assist enterprises in establishing profiles of customers, and prepare in advance according to the needs and expectations of seniors.

4.3 Prepare for the trip

We revealed that a main psychological barrier for seniors stay outside is preparing luggage needed for trips, which is in line with previous views that older people are limited in their ability due to degrading memory and perception (Hsiao et al., 2017). The new service process proposes that the hotel solicits information on various aspects of seniors based on a customized service page when reserving. The hotel can send the document "Preparation Matters" the day before departure through the mini-app. This document includes but does not include weather conditions during the stay, advice on clothing preparation, and the content of luggage to be prepared according to the customers' updated service needs.

4.4 Check-in online

The study advocates the development of online check-in to replace offline queuing and communication during COVID-19. Kim et al. (2021) examined that guests are inclined to look for minimum human contact and robot services in COVID-19. Online check-in has great merit in this period, such as reducing queues in the lobby and staff workload. Also, remote, or online check-in can enable customers to get information and related services of hotels more flexibly, which is more efficient than brief face-to-face communication.

4.5. Arrival

This step is no different from the usual, as seniors for check-in offline have been eliminated, so they only need to quote your ID number for verification with the staff in the lobby. Significantly, during the pandemic, the Chinese government requires health and trip codes to be presented for entry to public areas. Through different colors displayed by these QR codes, it is possible to quickly identify if a person has been in direct or indirect contact with some infected patients. The analysis is carried out through big data to directly target and find some people who may be infected and identify potential risks in time.

4.6 Stay

The hotels provide and meet the consumer's expectations based on customized services that elderly guests fill in online during reserving.

4.7 Check-out

This step is the same as the previous, where the guest provides the reception with his or her room card and checks out. As the check-out process has always been very simple, none of the interviewees had any suggestions to improve this step, so it remains.

5. Conclusion

This study invites seniors to participate in the R&D process through qualitative methods and co-creation, and hospitality explores how to adjust its service system better to serve seniors during this global crisis. A benign service system can help hospitality better serve specific groups and make a substantive reference for future crises. More importantly, it can help vulnerable industries strengthen resilience and recovery abilities. Service design tools are used to understand interviewees, the front stage and backstage of the service system under the epidemic situation, and the behavior flow chart of customers through the service blueprint in a visualized way. Whether service design as an interdisciplinary approach discussed in hospitality or from the hospitality itself to create a new operation mechanism, it is inspiring and innovative research.

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