Research on Smart Hotel Management from the Perspective of "Internet+"

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Abstract: This paper proposes a strategy of constructing a smart hotel hospitality system under the background of "Internet+", especially along with the sustained and rapid growth of tourism industry as well as the artificial intelligence. This paper systematically analyzes the implementation details and upgrading scheme of smart hotel construction, and puts forward the ways to improve the "intelligent" service, so as to provide reference for the further development of smart hotel.

1   INTRODUCTION

1.1   The Context of "Internet+"

"Internet+"fully exerts the optimization and integration of the Internet in the allocation of production factors, integrates the innovative achievements of the Internet into all sectors of the economy and society, and promotes the innovation and productivity of the real economy, forming a wider new form of economic development based on the Internet infrastructure and tools. Its essence is the data and online operation of traditional businesses (China Economic Times 2014).

1.2   The Development of Smart Hotels in the Context of "Internet+"

With the progress of technology and the popularity of Internet, especially mobile Internet, the construction of smart hotel has undergone a qualitative change. The development trend of the concept of smart hotel has changed from intelligent equipment to intelligent "thinking". In this era, in addition to intelligent equipment, smart hotels are more attentive to accurate customer marketing, decentralized management, and the depth and viscosity of personalized customer experience (Dong 2018). The following figure displays the integration of the three spheres:
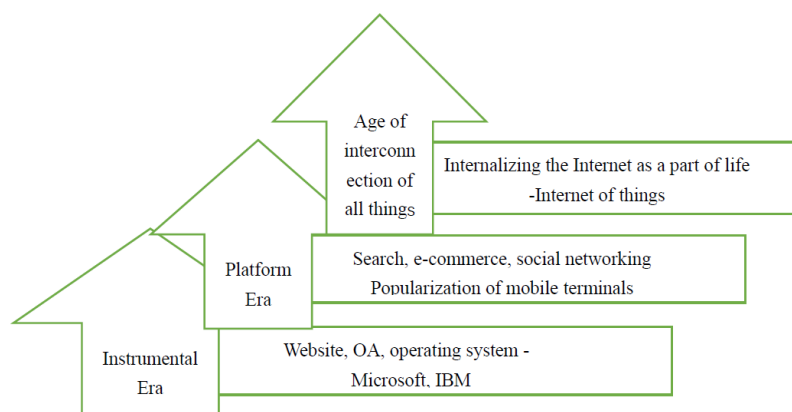

Figure 1: The integration of the targeted three dimensions.

2 CHANGES IN THE HOTEL INDUSTRY STRUCTURE IN THE CONTEXT OF "INTERNET+"

The rapid development of the Internet has reconstructed China's hotel industry, which is mainly reflected in the following three aspects.

Firstly, consumers' behavior and demand have changed dramatically. The post-85's and post-90's rise have gradually become the most powerful consumers in this era. They are free individuals, personalized and self-centered. They define their own community and requirements. From their perspective, personalized, convenient and social media become the core elements (Liu 2011).

Secondly, technological progress brings about industrial restructuring. The Internet has gradually completed the transition from instrumentalization to platformization. The Internet has gradually become an inseparable link with life, and the era of interconnection of all things is coming. In this era, Internet technology has become an indispensable factor in the daily operation of hotels. Internet technology is gradually integrating, changing and supporting the hotel's external marketing, engineering management, customer service, business management and other aspects. The organizational structure, supply and demand relationship and business environment of the hotel industry are undergoing subtle changes.

Thirdly, the hotel industry is stepping into a new era - the era of 3.0 marked by the ecosphere. Whether from the perspective of the development of social consumption demand or from that of technological progress promoting industrial change, the hotel industry is experiencing an unprecedented transformation. Over the past 30 years of reform and opening up, China's hotel industry has been booming for more than three decades (Maidian.com 2022). The hotel industry has experienced a great change from the guest room model to the star hotel model which has greatly promoted the standardization advancement of China's hotel industry in the past 30 years. However, with the surging tide of Internet, the management mode of overseas star hotels has been proceeding more slowly, especially after the technology iteration and the change of consumer demand in 2010 (Xue 2014). Comparatively, China's hotel industry has gradually initiated a new mode to meet China's consumer demand -- the ecosphere mode represented by the development of mid-range theme hotels.

3 IMPLEMENTATION OF SMART HOTEL CONSTRUCTION

3.1 Construction of Conventional Facilities

Smart hotel can provide personalized services for guests because of the introduction of many advanced technologies. The realization of these technologies is inseparable from the construction of conventional facilities. The smart hotel needs to establish information perception and transmission platform, data management and service platform, and information sharing and service platform (Ali Research Institute 2015).

3.2 Intelligent System Construction

Intelligent system is the core system of smart hotel, including functional parking system, self check-in and check-out system, intelligent elevator system, intelligent monitoring system, intelligent information terminal system and intelligent control system.
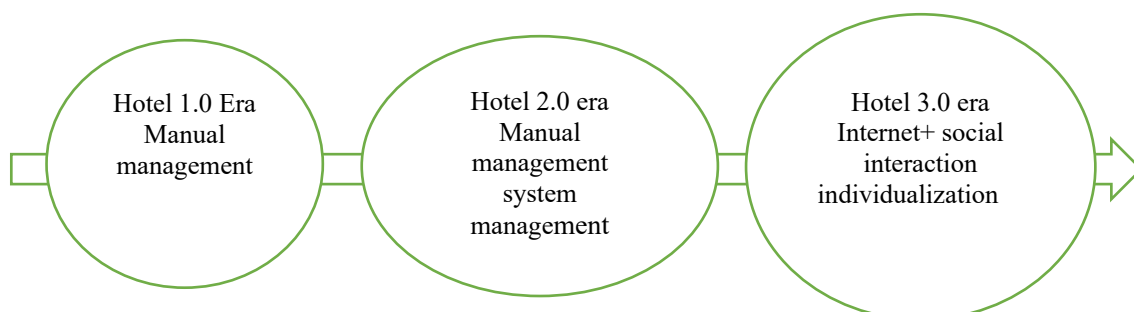

Figure 2: Ecosphere mode represented by the development of mid-range theme hotels.

Table 1: The construction details of the conventional facilities of smart hotel in the context of "Internet+".

	Construction content	Specific description
1	Network and communication system	a. Network. The hotel should realize the wireless broadband network coverage, have the means of anti-virus and Trojan horse, realize the online behavior monitoring function and online log recording function, so as to give an alarm to sensitive information. b. Mobile communication. 5G signal full coverage, mobile phone voice and data communication are smooth. c. Fixed line telephone. The hotel's fixed telephone exchange should be connected to SIP terminal, which can initiate calls from computers and tablets. Provide video phone, fax service, and publicize hotel rescue call, consultation call, complaint call, etc.
2	Radio and television system	The TV set in the guest room provides a suitable number of Chinese and foreign programs, with video on-demand function, equipped with cable and satellite TV.
3	conference facilities	a. Having the functions of light partition control, brightness adjustment, sound insulation, simultaneous interpretation, etc. b. With conference voting, rostrum control system. c. Having the function of teleconference and multimedia speech system. d. With remote conference system. e. With automatic conference check-in system. f. Having conference statistics system.
4	Website services	The hotel should build an official website with independent international and domestic domain names, provide multilingual information services, provide mobile WAP website and apps, and provide 24-hour online consultation, reservation and payment services.
5	Digital virtual Hotel	The hotel should use virtual reality technology, three-dimensional modeling and simulation technology, panoramic photos or video technology to establish digital virtual hotel, realize virtual roaming, and release relevant functions on the hotel website, touch screen and functional mobile phone.

Table 2: The construction details of intelligent system of smart hotel in the context of "Internet+".

	Construction content	Specific description
1	Intelligent parking management system	Provide smart card timing, billing or video license plate recognition billing services; Provide electronic car search, positioning and guidance services. The intelligent control system of parking lot takes the non-contact IC card integrated with the user's personal information as the certificate for vehicles to enter and leave the parking lot, monitors the vehicles in and out of the parking lot in real time with the advanced image contrast function, and manages the vehicle information with stable communication technology and powerful database management software.
2	Self check-in and check-out system	Provide remote registration service, or build self-service card registration and check-out system in the hotel. When guests enter the hotel, choose to register and provide ID card and other valid documents. After verification by the system, they enter the optional room module. After selecting the room, the system prompts the guests to pay the deposit.The guest will return the room card, and the system will automatically settle the account and print the invoice and bill.
3	Intelligent elevator system	The room card information of the guest can be automatically identified by radio frequency identification (RFID); Those without cards enter the elevator and refuse to press the key.
4	Intelligent monitoring system	It has the function of anti-theft, anti destruction, high definition of video, and recognizing the license plate number in the dark environment. Set up an electronic fence to remind people who exceed the fence. Identify fire and link with fire control system.
5	Intelligent information terminal system	The guest room information terminal system supports a variety of terminals (TV, telephone and mobile terminals), with audio and video playback, global positioning, touch control, video call and other functions.
6	intelligent control system	The room intelligent control system has control unit, supports TCP / IP protocol, and has good scalability. Intelligent terminal can control air conditioning, lighting, TV, curtains, etc., with sleep, comfort mode settings.

4 CONCLUSION

Smart hotel can provide personalized services for guests because of the introduction of many advanced technologies. This paper systematically analyzes the implementation details and upgrading scheme of smart hotel construction, and puts forward the ways to improve the "intelligent" service, so as to provide reference for the further development of smart hotel.

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