The Effectiveness of High-tech Product on Customer Satisfaction towards Luxury Hotel

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Abstract. With the fast speed of technology advancing, technology has occupied most of our daily life. High-tech products are very popular in today's hotel industry. The research question of “Can the new high-tech services in luxury hotels improve the satisfaction of consumers/guests?” The introduction of high-tech products can increase customer service effectiveness, reduce the operating cost for luxury hotels, and improve customer experience in hotels. The negative effects also start to appear when technology intervenes too much. The paper uses SWOT analyses to discover the impact on customer satisfaction due to the high-tech products in luxury hotels. The paper mainly focuses on the customers’ experience when hotels installed “smart” furniture or other “smart” devices. So, the research paper is based on the research question and “Can intelligent devices truly have a positive impact on improving the efficiency of customers?” The paper is designed to evaluate the real relationship between high-tech products in luxury hotels and customer satisfaction.

Keywords: Customer Satisfaction, High-tech products, Luxury Hotels, SWOT.

1. Introduction

1.1 Research Background

The service industry is undergoing a major paradigm shift in the 21st century due to rapid technological advancement. Many cutting-edge technologies, such as wireless broadband Internet, mobile devices, artificial intelligence, VR/AR, and the Internet of Things, have had and will continue to have a significant influence on practically all service industries, including hospitality [1, 2]. The constant improvement of technology has greatly decreased the obstacles to technology adoption, resulting in a significant shift in consumer behavior. Due to the increasing customer demand for convenience, durability, worry-free service, and immediacy, the use of information technology, the Internet, and the Internet of Things will become the core competitiveness of most hotel companies, and high technology will be widely used in the hotel industry. Most customers want to be able to use their cellphones to order in-room products, make restaurant reservations, and find out about local activities, among other things. Mobility should be a primary priority for every hotelier and a requirement for the majority of hotel guests. It's to make client arrivals feel more natural and inviting, with less coercion and transactions, whether they're seeking a property management system, point of sale payment systems, or needs. Your personnel can break away from the granite front desk and meet visitors anywhere in the hotel when your power production management system (PMS) is operating on a tablet. Front desk workers may use a tablet to receive real-time room status updates and speak directly with room staff, allowing them to give very important person (VIP) service anywhere in the hotel.

1.2 Research Gap

However, there is a disadvantage to this phenomenon. Customers may see pleasant service staff as a bare minimum need for good service as they increasingly utilize and rely on services powered by big data.
Customers, on the other hand, view a service encounter to be a social event, and as such, they may prefer human interaction [3]. Hospitality is built on "hospitality," which expresses service providers' positive attitude toward making their customers feel cared for, welcomed, and cherished [4]. Hospitality is defined as human-provided service that is marked by emotional processing and contact between service providers and visitors. As a result, distinctive and authentic human interactions, even simple gestures by employees, can help a firm distinguish itself in the market and establish a distinct brand image [5, 6]. While technology often outperforms humans, humans still exceed technology in two areas: empathy and creativity. Although technology can produce operational results that are efficient, consistent, and reliable, service employees' certainty, responsiveness, and empathy can spark a warm human-to-human relationship that meets customers' emotional requirements and exceeds their expectations [7]. In other words, when human services address their emotional needs and develop an emotional relationship with people, they are more effective at creating unique and memorable experiences. Service robots today can do the first two levels of artificial intelligence (mechanical and analytical), but they cannot perform the higher-level intelligence abilities (i.e., intuition and empathy). While the hotel industry has garnered a lot of attention and resources for its use of technology, the human side cannot and should not be disregarded.

1.3 Fill the Gap

Consumer expectations are rising as a result of the massive power of high technology and the Internet of Things, and hotel operators must adapt to changes and address problems quickly and easily with an all-around and multi-angle view. Hotel customers have specific expectations, which hoteliers must meet regularly. Technology may simply give the ability to solve this difficulty in areas where customer expectations for experience value are very high. The hotel sector is turning to high-tech services to meet the difficulties of rising visitor expectations. Here are a few examples of how high-tech services are beginning to affect hotel visitor happiness.

Online reservation. Expedia, Kayak, Booking, and, of course, Airbnb have all made it simpler for consumers to locate cost-effective hotel kinds, high-product services, and high-quality services as new travel sites have emerged. Hotels are attempting to automate the check-in and check-out procedures to boost productivity. Mobile hotel check-in and check-out may become the standard shortly, allowing personnel to concentrate more on the client experience. For example, Hilton Properties introduced the Hilton Digital Key app in 2015 and plans to enable keyless entry in 2,500 hotels by the end of 2017. Another thing to consider is hotel energy-saving technology, with many hotel group operators and developers devoted to environmental sustainability and energy conservation. Starwood Hotels & Resorts, for example, employ daylight harvesting to change inside lighting based on the quantity of natural light coming in from the outside. When the room is vacant, lights may be switched off and the temperature can be reduced using motion sensor technology. This project has elevated hotel governance to a new level of energy efficiency and has made a significant contribution to the hotel sector.

Robots work at hotels in Japan. The Heimna Hotel is the world's first hotel to be serviced entirely by robots. Predicting the expansion of hotel robots to give guests facilities and clean rooms is one of the hotel's main services. In the future, customers may find robots cleaning their hotel rooms. Reduced technology costs encourage investment in these sorts of technological advancements while also allowing hotels to save money on operations.

Beyond the visitor experience, technology plays an important role. First and first, hoteliers must understand their guests' interests and hobbies to create a unique, personalized, and representative experience. This has the potential to create a lasting impact and give a memorable experience. The next sections will go through how the high-tech services mentioned above may help luxury hotels boost client satisfaction.
2. Literature Review

2.1 Definition & Development/Factors

Technology advances at an incredible rate; numerous research on the technology acceptance model has been conducted during the last few decades. Fred D. Davis first proposed the Technology Acceptance Model (TAM) in 1989, and it is based on two factors: Perceived Usefulness (PU) and Perceived Ease of Use (PEU) [8]. The probability that a person will increase their work performance by utilizing the system [8]. PEU, on the other hand, is concerned with the amount of mental or physical effort necessary to operate the device [8]. TAM describes perceived usefulness and usage intentions in terms of social influence and cognitive instrumental processes, according to Venkatesh and Davis [9]. Venkatesh and Davis conducted an additional study in 2000, resulting in TAM2, which incorporates external social elements that impact the behavioral desire to utilize new technology. Venkatesh and Bala conducted an additional study in 2008 to better understand how various interventions might impact the known factors of IT adoption and use [10].

Lu et al. created a TAM for wireless Internet via mobile devices, a conceptual framework to explain the elements impacting user acceptance of the Welsh Index of Multiple Deprivation (WIMD), a study of TAM being applied to wireless internet [11]. Then, in separate research, Holden and Karsh examine the application of one such theory of TAM, to health care [12]. And, according to research published by Aggelidis and Chatzoglou, the use of information technology in the healthcare sector, particularly in hospitals, has a great deal of potential for not only improving the quality of services provided and the efficiency and effectiveness of personnel but also for lowering organizational costs [13]. In 2008, Ha and Stoel released a paper in which they combined e-shopping quality, satisfaction, and trust into a TAM to better assess customer acceptance of e-shopping [14]. Another research looks at the relevance of Davis’ TAM in the acceptability of electronic collaboration technologies among users [15]. Extensions to the TAM framework employ the notions of a task–technology compatibility and experience to enhance its explanation of the role of human-automation interaction in automation adoption, according to an article by Ghazizadeh and colleagues [16].

2.2 Important Results

So, the TAM is being applied to many different fields, TAM is one of the popular theories that can be used in any field. TAM’s Perceived Usefulness (PU) and Perceived Ease of Use (PEU). These studies indicate how TAM has been used in another research. Many of the studies employ TAM as a technique to obtain their conclusions, and their papers show how TAM has been used in other studies. The study from Lu and others is beneficial to this article, because of its use of TAM. There are many uses of TAM, TAM2, and TAM3, and modified to become more related to the topic. As a result, they offer Automation Acceptance Model (AAM), a brand-new theory that incorporates both the IS and CE views [16]. Another research by Abdullah and Ward suggests the use of TAM in the field of GETAMEL (General Extended Technology Acceptance Model for E-Learning) [17].

2.3 Summary

However, some articles study hotels that are using TAM as a tool. In 2008, a study published by Kim et al. Examine the acceptable behaviors of hotel front office systems [18]. This is an example of TAM being applied in the hotel industry, but there is no specific research about TAM being used in the hotel industry that specifically analyzes customer satisfaction, so TAM can be used into analyzing how technology influences customer satisfaction.
3. Method

3.1 Research Design

This research paper is designed to analyze the impact that technology brings to the hotel industry, especially in luxury hotels. With the rapid development of technology, many hotels are planning to use robots in their hotels to replace human labor to reduce the operation cost. It can benefit the hotel industry, but the undefined point is that customers like to interact with high-tech facilities in their hotels or even in their rooms. So, using SWOT analysis to analyze what high-tech facilities could influence customer satisfaction by using these facilities.

3.2 Luxury Hotels

The research target is mainly luxury hotels with high-tech facilities, because of the cost of purchasing these high-tech facilities, mostly are luxury hotels will consider putting in high-tech interactive facilities. For example, it can link the hotel’s room TV to the personal information which can show the consumption in the hotel or the flight information; the liquid crystal atomized glass is mostly transparent. When the customer taps the remote, the glass will produce an “atomization” effect, and a private bathroom will be created; the AI assistant inside the room can help customers to control the furniture and other electric appliances inside the room by just simply speaking out the command that customers want the AI to achieve, they can distinguish the words that customers said and help to finish what customers want them to do; the widespread use of smart door locks in Marriott hotels, by finish the mobile check-in, and then the mobile room card will be created in smartphones so that physical room card could not be taken when customers leave the room. The research target is mainly luxury hotels’ high-tech facilities and their influence on customer satisfaction.

3.3 SWOT Analysis

3.3.1 Strength

Speak from the liquid crystal atomized glass in the hotel room, many luxury hotels are using this facility to enhance the sense of technology of the hotel, it can reduce the steps of put down the curtain, and the process is simplified to only clicking the buttons on the control panel, there is no need to manually pull down the curtain now. So that, customers can accept this technology, making customers accept is the main point to make customers feel satisfied. The artificial intelligence voice assistant can also improve customer satisfaction to a certain extent. It can complete the adjustment of the facilities in the room when the customer is busy with the things on hand, including turning on or off the lights, pulling the curtains, and switching on or off the TV, so that the customer can put into life immediately after putting down the work at hand. And also, the delivery robots can improve customer satisfaction and convenience by delivering the takeout in the doorway. After arriving at the guest room, it can automatically dial the guest room landline telephone to remind the guest to open the door for the reception. This is a really common high-tech facility in China, not only do luxury hotels have those, but many family hotels also have these robots to improve customer satisfaction. On the other hand, this can also reduce both human and material resources paid by the hotel, to achieve the purpose of reducing costs.

3.3.2 Weakness

Negative effects can be shown during the use of high-tech facilities. Although high-tech products simplify various steps and improve convenience, their stability is still relatively poor due to their high failure rate, some equipment cannot be as stable as mechanical-structure-based facilities. If the liquid crystal atomized glass faced some issue, then what it will bring is a decrease in customer satisfaction, because the privacy of customers has been affected. Including the failure of some other high-tech equipment, it will also affect customer satisfaction, because the current equipment is interrelated, and the failure of one piece of equipment may lead to the failure of multiple types of equipment. Even if it is a small probability event, once it occurs, it will affect customer satisfaction hardly. Another factor
is from the older generation, the complexity of high-tech equipment lets the elderly have no idea where to start because many switches become no physical buttons and many switches are integrated into one screen. Therefore, even better facilities, equipment, and services cannot bring convenience or satisfaction to customers or the elderly who can't operate, so the effect of an overly complex facility decreases rather than increases.

3.3.3 Opportunity

Due to the increased usage of high-tech facilities in luxury hotels, the popularization of more high-tech facilities will attract more young consumers, which will be satisfied when they saw the concept become true. More advanced technology in hotels will become the leader in these luxury hotels, which can increase the market share due to the appearance of this technology. At the same time, it can also promote the cooperation between technology and the hotel industry, which means hotels could purchase these facilities at a relatively low price and make the hotel more attractive because of enjoying the best facilities at the most cost-effective price. It can effectively improve customer satisfaction because there is a great contrast between the price and the experience in the hotel.

3.3.4 Threat

The threat can be identified as the speed of the advancement of technology, or the plagiarism from other luxury hotels because once a facility becomes not rare or common, its attraction will decline significantly because most hotels have it. The market of the specific hotel will be “robbed” by other hotels, to some extent, the monopoly is over, so the popularity will decrease as the facilities become common. Therefore, the benefits brought by high-tech facilities will greatly seize the market, but at the same time, obsolescence will occur quickly, and the freshness of the market will be reduced quickly. Therefore, hotels need to constantly invest costs to become more competitive

4. Result & Discussion

First to sum up the conclusion after discussing the SWOT analysis. The strength of the high-tech products in luxury hotels is clear, they can make customers enjoy a greatly improve hotel life experience, by having many facilities and equipment that can reduce cumbersome processes and allow customers to reach their goals in “one step”. On the other hand, the intelligent facilities and equipment sometimes bring bad experiences to customers, when a device is too smart, it will make some older customers feel uncomfortable and unacquainted. If the use process of a device is too complex, the effect on the satisfaction will only be just the opposite of what one wished.

The level of competition in the hospitality industry means that customer satisfaction is especially important for hotels to outperform their competitors. The need to differentiate by offering innovative and high-tech services has prompted many hotels to focus on customer satisfaction. However, what can promote the hotel industry to provide customer satisfaction not only requires artificial technology but also requires a strong enough network infrastructure to support the strong brand power and brand culture of the hotel. Having the right solid technology support enables them to grow their business faster and safer, builds the foundation for upfront high-tech services, and enables them to take advantage of future technological advancements to further improve customer satisfaction.

Therefore, offer the following two suggestions. Hoteliers may find that the benefits greatly surpass the early expenses and worries. In addition to overcoming costs, funding high-tech services in hotels remains a hurdle for hotel operators trying to incorporate new technologies, and despite the cost-saving possibilities, chains prioritize technology expenditures twice as much as smaller hotels. They address budgets by offering a broad source and hotel-operated platform that helps keep costs down compared to buying a lot of outdated equipment that's off the market. The second is combating fraud and security. Fraud is also an issue. With the rise of data breaches, hoteliers are turning to data scientists, and hotel technology platforms should gather as little guest data as possible to get the desired results. Data acquired for each visitor should be erased immediately once the stay is completed or retained in a data repository with enterprise-grade security and evaluated by a professional data
engineer regularly. All of these platforms must complement each other to maximize operational efficiency, and better collect and protect critical guest data.

5. Conclusion

As competition in the service industry intensifies, high-tech services play an increasingly important role in today’s hotel industry. Customers seek better, more innovative alternatives when there is no difference in service offerings between competitors. Innovation-driven is inherently talent-driven, and hotels must take action to drive innovation. The hotel industry needs to attach great importance to human interaction. Customers have basic perceived needs, and above those basic perceived needs are the customer's hedonic needs. Technology applications can meet the perceived needs of customers by providing efficient, accurate, and stable services. However, people's choice to interact often requires identifying, responding to, and addressing their hedonic or emotional needs. The application of technology conveys respect and empathy to customers and creates a feeling of appreciation, trust, and loyalty among customers.

It concluded that, in luxury hotels, the use of high-tech services increases hotel satisfaction. The application of high-tech services in the hotel industry saves time for customers and money for hotels. This also allows hotel staff to have more energy and time to provide customers with better and more personalized service. The results of this study suggest that service personnel should play a front-line and primary role in building trust and emotional engagement with clients. Client data gathered through technology helps service staff obtain a better knowledge of each customer and more accurately match customer preferences to service offerings. Front-line service workers may use hotel technology to improve service quality, relieving them from monotonous and routine tasks and allowing them to spend more time analyzing and attending to clients' perceived wants and hedonic demands. As a consequence, having more personal dialogues with consumers, which may be of greater interest to them, is simpler, as is tailoring service in a courteous and understanding manner. Customer loyalty based on emotional pleasure may therefore be strengthened and extended.

There are certain flaws in this study. First, the study was unable to develop a thorough list of potential technological uses. Future research may offer a comprehensive list of more sophisticated and complicated technology. Furthermore, because people in various countries may have varying technological resources and degrees of local acceptance, the results of this study may not apply to other countries. Including a more diverse survey may result in different results. Finally, various cultures may have different perspectives on technology and personalization. People in Western civilizations at the forefront of the technological revolution, for example, may place higher importance on technology than people in Eastern cultures, who prioritize human communication. Future studies should involve people from various cultural backgrounds to see if culture influences consumer choices for technology or human services.

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