










The Role of Innovative Technologies in Improving the Management of Consumer Behavior in the Hotel and Restaurant Business

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Abstract. A good share of the change that has occurred in the hotel sector may be ascribed to recently evolve technological solutions. Emerging and maturing new technologies include automation, big data, cloud computing, and artificial intelligence are changing the way businesses interact with their consumers, run their operations, and make decisions. These technologies not only help to better understand consumer preferences but also enable speedy response to abrupt changes in such preferences, therefore improving the efficiency of companies and customer pleasure. In this regard, especially in the hotel sector, study on the manner in which new technology shapes the management of customer behavior is rather vital.

Investigating the prospective impact of new technologies on the evolution of customer behavior management systems in the framework of the hotel and food service industries is the main goal of this study. The main goal of the study is to better understand how digital technologies, automation, and data analytics might improve customer delight, speed internal procedures, and finally provide higher organizational success.

Research results show that by better predicting consumer wants and changing the offered services, the use of new technology in the hotel industry has the potential to significantly increase customer happiness. Gathering and evaluating enormous volumes of data on digital platforms for customer contact management will help companies to better understand consumer behavior and adapt their policies to the particular needs of every individual client. Reducing running costs and boosting individual job output are other advantages of automation of procedures. Based on the acquired knowledge, fresh ideas for the digital transformation of the hotel sector might develop. These concepts will be developed with the goal of enhancing interactions with consumers and obtaining an edge over other businesses in the industry.

The relevance of this research lies in the fact that in the context of rapid changes in the market and increasing competition, businesses in the hospitality and restaurant industries are compelled to use new technologies in order to maintain

their competitive edge. As Smith points out in his research paper [1], «Digital technologies are becoming a defining factor in ensuring customer loyalty and enhancing operational efficiency in the service sector». These studies contribute to a better understanding of how these technologies may be used to consolidate management processes and improve the overall performance of corporations.

The results of this research are meant to provide new ideas on how contemporary technology may be effectively included into the hotel and restaurant sectors to support long-term development and raise consumer satisfaction. It will enable the hotel and restaurant sectors to create sensible digital transformation strategies, therefore enabling their competitiveness and market adaptation. Therefore, the outcomes of the study might provide the basis for further investigation and pragmatic suggestions for the application of new ideas in this domain.

Keywords: Innovative technologies · consumer behavior management · the hospitality industry · digitalization · automation · artificial intelligence · service personalization

1 Introduction

Now, with globalisation and after the advent of digital era, there came an essential element that every company have to comprise in their system—generative technologies even if it a hotel or catering business. A modern market is defined by fierce competition, ever changing consumer expectations and high level of service. To meet with the tailored approach providing rapid productivity and ease of use to customers in their engagements with enterprises, then ultimately contemporary technologies are to be used which could fulfil those needs. Work is also a good way to track the behavior of consumers and thus, industry-leading technologies like Artificial Intelligence, Big Data, Automation, Cloud and Digital Platforms are becoming increasingly important. It provides access to tools that allow businesses to provide quality service and streamline internal strategy execution.

Technological innovations are recognized as tools to develop the competitive edge of firms in hotel and restaurant business. They adjust to their alterations, delivering better approximations of client needs and offer up products and services that meet these expectations. In addition, technology provides faster and more efficient customer service, reduces maintenance costs and increases employee productivity. All this work paves the way for greater customer satisfaction and loyalty to the Brand.

2 Literature Review

Experts from both local and foreign backgrounds have thoroughly investigated the relevance of new technologies in the hotel and restaurant sectors in recent years. Their main goal is to underline the need of digitization and automation in improving management processes and raising customer satisfaction.

In the hotel and restaurant business, Ukrainian experts are constantly studying how new technologies affect how managers handle customer behavior. In this case, Ivanenko

O. [2] says that «the use of digital platforms for managing interactions with customers greatly increases customer loyalty and improves business processes». Petrova N. 's studies back up this theory, which says that «innovative technologies are a key factor in ensuring the competitiveness of enterprises in the modern market» [3]. Koval L. [4] says that «big data analytics allows businesses to gain valuable insights about consumers, which contributes to improve service quality». This makes the point that big data should be used for analyzing customer behavior. I also agree with Koval L. [4] that big data should be used to study how customers behave. He says, «big data analytics enables enterprises to acquire valuable insights about consumers, thereby improving service quality». Savchenko M. adds that automating processes in the hotel and restaurant business not only cuts costs but also makes staff work more efficiently [5].

An enormous amount of study is being done around the world to find out how new technologies affect the hotel and food business. When artificial intelligence is used in management, Johnson M. [6] says that it not only helps predict what customers will want, but it also provides personalized service, which makes customers happier. Smith J. [7] also said that automating tasks in the hotel and restaurant business cuts costs and boosts efficiency, which is especially important in a market where competition is growing all the time.

Being aware that big data analytics has the ability to help businesses learn more about what their customers want and need, which will help them offer better goods and services, Anderson T. is an expert in how to use «big data» in the study of market behavior. On the other hand, Miller R. [9] says that using cloud technology in the hotel industry makes it much easier to handle data and quickly find important documents.

A study of the scientific literature says that new technologies are very important for making the restaurant and hotel businesses more efficient. Academics from both local and international colleges are certain that using digital technology is essential to raising customer happiness and business competitiveness. Nevertheless, despite the abundance of study, there are a few glaring flaws that still need examination. These gaps include scientific studies of how technology affects small businesses, regional markets, long-term effects of technology adoption, consumer psychology, and the integration of various technical solutions. To completely understand the impact of state-of-the-art technology on consumer behavior management in the hotel and restaurant business, more thorough research is needed. Specific emphasis will be laid in understanding separate cultural and financial aspects of geography whereas judging the lasting impacts of technology integrations.

3 Materials and Methods

The use of innovative technologies for the hotel and restaurant industry is one of the key processes in ensuring that customers behave correctly, improving business performance, and creating sustainable competitive advantages. The modern hotel sector is characterised by fierce competition and rapidly evolving customer needs, which is why companies need to be as flexible as they are fast to adapt. Technological breakthroughs, including digitalization, process automation, artificial intelligence and analytical tools, improve internal operations, enable more accurate forecasting and support fulfilment

of customer needs. This in turn means better quality of service, customised offers and happier clients. This in turn results in establishing customer loyalty, the customization of deals, and quality serviced provided. Today's hotel industry sees aggressive competition and quickly changing consumer tastes, thus, calling for a need to be nimble and agile in adapting to these external factors. These include technological advancements such as digitalization, process automation, artificial intelligence and analytical tools which can elevate internal operations as well as improve the accuracy in predicting and meeting customer demand. Thus, more client loyalty, offers specific to the individual and better service. As a result, there is better quality of services, product customization and stronger customer brand engagement. At the moment we have a hotel industry which is ultra-competitive and where client tastes and preferences change fast. This means that organizations must be able to adapt quickly to changing circumstances. Technological advancements such as digitalization, AI, process automation and analytical tools enhance internal operations and enable organizations to forecast with better precision and keep the customers happy. Thus, the improvement of service quality, program customization and client loyalty is demonstrated. As a result, this increases the quality of service, refines promotions and enhances customer loyalty. In addition to the above, state-of-the-art technology enables cost reduction, the optimization of management choices and enhances company positions in a global market. It follows that the application of innovation in the hotel and restaurant business is not only an instrument to improve operational efficiency but also a prerequisite for existence and development in a volatile market.

The research of new technology developments that may affect the hotel and restaurant company in the next years helps us to comprehend how these innovations might alter the game in the hospitality sector. The following may be regarded major technical developments (Table 1): augmented reality (AR) and virtual reality (VR), blockchain, Internet of Things (IoT), artificial intelligence, which is another name for machine learning, the use of robots and technology, tech that can help you talk, biometric measure technologies, cloud technologies, advanced analytics and big data (Big Data).

If one ponders tech movements, directed particularly toward inventive technologies, hoteliers and culinary enterprises that put innovations into active use might be allowed to boost their business efforts; they can also create a singular, unmatched visit for patrons. This would then ensure customer allegiance and market competitiveness in the hotel and restaurant scene. The possible resultant unique customer encounters from actively harnessing new tech innovations create their own value, maybe not precisely clear here, but it is there. Enhancements to the hospitality and food service business model will not be entirely evident at first. As inventive technologies evolve, the scenario could change gradually, forcing an unsure linkage with tech's impact on a somewhat disorganized transition towards customer retention models in the hospitality industry, which is still rather abstract.

In the present context of hotels and eating facilities, the position of sophisticated technological adaptations is undeniably valid. All these aid primarily in efficiency heightening, customer relationship amelioration, and firming up market stances. Companies of prestige and high-ranking ones are making moves to incorporate novel tech. There are many, and they stand as proof of thought-inspiring, successful manoeuvring towards the

business's recent realities (Table 2). Adaptation, successful – these messy ideas aren't perfectly pieced together, but they're about bringing some connection to some degree.

For instance, utilizing automated hotel management systems or robotics in kitchens does not only improve productivity but it also assures quality and standard of services even when the external circumstances are agonizing. With the help of big data technologies and artificial intelligence, businesses can also predict customer demands with high

Table 1. Innovative technologies that companies actively use to improve the process of managing consumer behavior

<i>Technology</i>	<i>Description</i>	<i>Example</i>
<i>Mobile applications</i>	Mobile applications provide customers with convenient access to services, including booking rooms or tables, ordering food and drinks, and viewing menus and special offers	OpenTable is an app for reserving tables at restaurants, with the ability to view menus and leave reviews
<i>Booking management systems (PMS)</i>	Booking management systems automate the room administration, order processing, and interaction with many booking systems	All facets of the hotel business—including financial accounting, bookings, and room inventory management—are under control using Opera PMS
<i>CRM- systems</i>	CRM systems facilitate the management of client relationships by providing personalized messaging and offers that are based on previous interactions	Salesforce offers answers for analytics, marketing campaigns, and consumer contacts management
<i>Data Analytics</i>	Tools for data analytics enable the gathering and examination of customer preferences, trends, and campaign performance effectiveness in marketing	Google Analytics was utilized to track website and app visitors as well as to examine how successfully marketing plans worked
<i>Artificial intelligence (AI)</i>	AI technologies are employed to analyze vast quantities of data, personalize offers, and automate customer service	Chatbots are automated assistants that offer real-time consumer support by answering inquiries and assisting with bookings
<i>Interactive terminals and self-service systems</i>	Self-service systems and interactive terminals	Food and payment ordering kiosks used in restaurants help to accelerate services by cutting lines

(continued)

Table 1. (continued)

<i>Technology</i>	<i>Description</i>	<i>Example</i>
<i>IoT (Internet of Things)</i>	Using IoT (Internet of Things) technology, hotels and restaurants may combine many sensors and systems to automate security management, climate control, and lighting	Connected Kitchen Devices for monitoring and managing food preparation processes
<i>Augmented reality (AR) and virtual reality (VR)</i>	AR and VR technologies are used to create virtual tours of hotels and restaurants, as well as to provide an interactive experience for customers	Virtual tours developed for hotels enable prospective consumers to acquaint themselves with the rooms and amenities before to making a reservation

Source: Compiled by the authors based on sources[11–18]

accuracy, perform more precise consumer behavior studies, and respond promptly to new market situations. Ultimately, using new technology in the hotel industry provides businesses with a strong competitive advantage. It also makes customers more satisfied while enhances the quality of service and helps you to gain more control over consumer behavior. They also open up new business growth avenues. Not only these companies can offer their leadership and market domination for years in the hotel and food industries, but they may also be deciding on what will become the standards of each industry in addition to adapting faster than everything else that happens out there.

The best thing a hotel and restaurant owner can do for himself/herself in the current market is to persuade him/herself of his/her influence on customer behavior. Control of the behavior of the consumer – these are tactics that are aimed at attracting, retaining and enlarging customers base in relation to the company (with a direct influence on its efficiency and competitiveness). This industry uses digitalization & automation, social media and influencer marketing service personalization, service integration process (SIP), Environmental Responsibility & sustainability Customer Experience Feedback, Loyalty Programs. The company in the hotel and restaurant sector that applies these methodologies and technologies is Marriott International. With all its services are distributed through innovations, this leading global hotelier aims to change the way people experience customer care.

Examples of the application of strategies and innovative technologies at Marriott International include the following:

1. The Marriott Bonvoy mobile application enables guests to reserve rooms, conduct contactless check-in/check-out, order services, engage in conversation with staff, and utilize a mobile key to access their accommodations.
2. Marriott uses the knowledge of visitor preferences to provide unique offers. This include selecting lodging based on preferences as well as recommendations for food, entertainment, and other services appropriate for them.

3. It has a proactive presence on social media platforms and employs influencer marketing strategies to promote its products. This organization collaborates with renowned influencers to create content that accurately portrays the distinctive accommodation experience offered by the hotels within the network.

Table 2. Examples of companies that actively use technological trends in the hospitality and restaurant business

<i>Trend</i>	<i>Company</i>	<i>Description</i>
<i>Virtual and augmented reality (VR/AR)</i>	Marriott International	Marriott International creates virtual reality tours of its properties. This lets prospective visitors enjoy the hotel's vibe even before they book a room
<i>Blockchain</i>	TUI Group	Using blockchain to handle booking contracts and maximize its operations, one of the biggest tour operators worldwide manages
<i>Internet of Things (IoT)</i>	Hilton Hotels	Hilton Hotels implements IoT in its hotels through the Hilton Connected Room program. By controlling the temperature, lighting, television, and other equipment in their room via a smartphone app, guests may create a customized stay
<i>Artificial intelligence (AI) and machine learning</i>	Four Seasons Hotels and Resorts	Four Seasons Hotels & Resorts forecasts their requirements and analyzes consumer comments using artificial intelligence. This helps improve service and create personalized offers. In addition, AI chatbots are used for round-the-clock guest service
<i>Robotization and automation</i>	Henn-na Hotel	In Japan, it became the first hotel in the world where almost all the staff has been replaced by robots
<i>Voice technologies</i>	Aloft Hotels	Uses Amazon Echo voice assistants in rooms, allowing guests to control room functions (lighting, music, etc.) with voice commands

(continued)

Table 2. (continued)

<i>Trend</i>	<i>Company</i>	<i>Description</i>
<i>Biometric technologies</i>	Disney's MagicBand	Disney Resorts uses biometrics (facial recognition) for quick access to amusement parks, hotels, and payment for goods and services
<i>Cloud technologies</i>	Accor Hotels	Uses cloud solutions to manage its hotels around the world
<i>Advanced analytics and big data (Big Data)</i>	Inter Continental Hotels Group (IHG)	Uses big data and analytics for pricing management and the development of marketing campaigns for more accurately forecast demand and offer better conditions to its guests

Source: Compiled by the authors based on sources[19–23]

4. Marriott uses customer feedback for continuous service improvement.
5. Among the most well-known reward programs available in the hotel sector is the Marriott Bonvoy one. Her members may accrue points for hotel stays and bills, which can then be redeemed for free nights, upgrades, and other benefits.

And, Marriott International is a powerful player in the global hotel and restaurant industry and exemplifies how a company can successfully marry innovative technology with customer-focused processes. According to Fig. 1, which depicts the core metrics of Marriott International over a five-year period; consumer use of both the mobile app has surged significantly (>40% growth rate), indicating that digital activity is alive and well. Consumer satisfaction \uparrow Twitter continues to be pretty high, with a slight increase from 2020 to 2022. Customized services are being implemented at an accelerating pace, emphasizing the growing need for personalization to improve customer experience. Compared with that, the card-membership level of the loyalty program continues to grow yearly, so it should be working fairly well.

The factors that were examined demonstrate how Marriott International effectively leverages creative technology to enhance its organizational efficiency. Furthermore, Ukrainian enterprises in the hospitality and restaurant sectors implement state-of-the-art technology. Premier Hotels and Resorts is one of the largest chains of Ukrainian hotels that is actively utilizing digital technology. For its visitors, they have created a mobile app with simple accommodation booking, service order access to special offers, Furthermore; the network enhances client engagement and customizes services using CRM technologies.

Everyone is familiar with the creativity of Kyiv «11 Mirrors Design Hotel,» a hotel using artistic approach to its hospitality. They use technology to sell unique offers tailored per visitor analysis of what you would like. The hotel has also integrated modern room

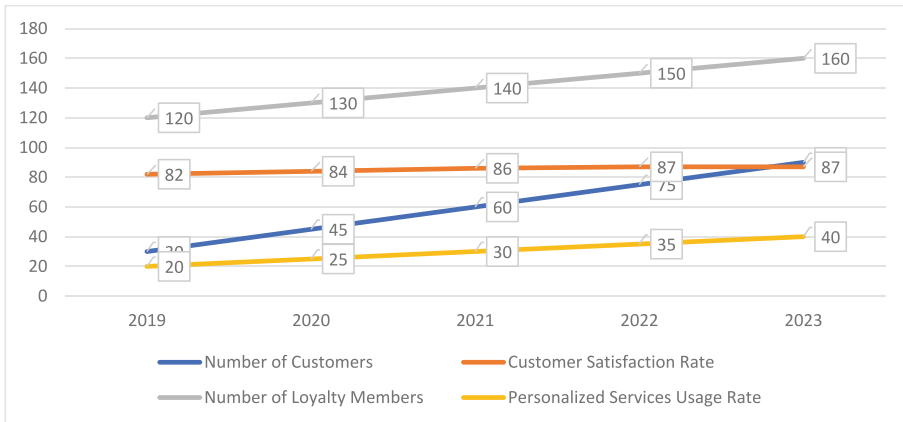


Fig. 1. Key financial indicators of Marriott International from 2019 to 2023. Source: Compiled by the authors based on sources [24–28]

control technologies that permit guests to use cellular phones to control numerous areas of their keep.

Dmytro Borysov's restaurant family, for example,» is the operational director of popular establishments such as «Bar Mushlya» and «Oysters Cava Bar. They, are participating in digital services and channels such as electronic menus, and online ordering and delivery through social media platforms/hardware applications aka mobile apps.

Husovskyi's restaurants use the latest technology to achieve unparalleled customer service. These analytical tools provide understanding of consumer behavior, customization of goods or services, and also help us in improving marketing initiatives. Mobile apps, additionally, are broadly utilized to engage with buyers and in advance loyalty programs. To prevent this, instead of automation, which is just one portion of the Internet of commitments (IoT), I propose we call in this trend reefer IoT free helpers: Enabling remote check-in with monitoring energy use to optimize per-foggy room administration and our happiness as guests has arrived to the Radisson Blu Hotel in Kyiv. The hotel also intelligently manages reservations and can ensure passengers are properly dispatched if customers have received hands-on support via the cloud.

The examples above show that hoteliers and restaurateurs, who are the customers of Ukrainian firms as well, also actively integrate innovative technologies to remain competitive in the market and improve customer service.

Successful management of customer behavior in the hotel and restaurant business by deploying innovative technologies is an essential area, which can ensure fully utilization of the capacity as well rationalize operation costs and create strategic advantages for operators. Modern technologies help companies understand the changing demands of customers and respond flexibly through digitalization, automation, mobile apps, analytics or other means. By providing more personalized service, it also improves consumer experience, and this is supported by the consistently high levels of customer satisfaction among leading institutions like Marriott International. All this results in an increase in the number of regular customers and their loyalty, allowing you to attract new clients

with the help of loyalty programs and targeted incentives. In addition, the automation of banal operations and the transition to platforms can greatly speed up management processes and more rationally use resources in them overall help organizations that are active innovators. These dynamics are very important for the success and long-term growth of hotel and restaurant businesses as fast-changing market environments would no longer be able to keep pace or ahead of the guys necessary to find their competitors. Applying creative technology meets consumers' endless high-level demands and even drives new tastes, thus insuring perpetual development of the corporation.

4 Discussion

Regardless of the particular advantages, employing creative technology in the restaurant and hotel industry can lead to some demanding problems that might ignite fires between customers and business experts. The largest among them are the collection and processing of significant user data to personalize service, which could lead to privacy or security problems from this information. The question of personal data ends up being stored, used and protected by these organizational entities, and managed in compliance with data protection regulations.

Automated systems for reservation, room service or solving queries can comply to improve operational efficiency. But, it could also erode the level of human interplay important for some clients. The impossible balance that many companies struggle to reach is the one between personalized services and automation.

The problem is that new technology comes at a price, quite often, a hefty one. Those expenses that for some companies (especially smaller and more independent companies) would be far too onerous, thereby to the basic survival as well as profitability of these services.

Consumer behaviour in the process of analysis employing artificial intelligence raises ethical issues in relation to potential algorithmic biases and automated recommendations which may not always favour the customer.

Greater adoption of new tech and automation could mean a reduced requirement for human labor, which would understandably create doubts among people regarding their future job opportunity. Especially in a context of corporate social responsibility. Those controversial topics are well beyond the scope of this post, but it speaks to just how powerful applying creative technologies can be both positively and negatively in terms of influencing decisions. It is essential to both assess the benefits and possible risks if the company wants to succeed unhindered by any of the stakeholders interests. Yet if all foreseeable threats were not be cited, or the most recent technology might have correctly begun to appear in business processes. Well trained personnel, extensive testing and planning would suggest that more new technology is implemented without negative outcomes.

5 Conclusions

Using contemporary technology in Ukrainian hotels and restaurants demands many considerations to improve efficiency and success, which might be chaotic. First and most importantly is to match local market features to technology, such Ukrainian people's preferences, degree of digital knowledge, and even popularity of service platforms. Next, a crucial impact on the success of technology application, plus it's from the Internet of Things or network services, consequences are local infrastructural hindrances, including fast Internet connectivity, particularly in faraway places. Data protection policies and privacy are clearly a hot potato; the regulatory framework and Ukrainian particular legal adherence are of equal importance. Technologies have to abide by local guidelines based on EU standards with an eye toward GDPR for understanding of any future worldwide customer contacts in case of need. Another essential element is data protection; while handling large personal data sets, one must make investments in a cybersecurity plan. Furthermore required is time and money spent on staff training programs to properly use new technology, thereby improving the user experience. Evaluating investment expenses has to exactly reflect the measure of technology application. This is always especially crucial for smaller firms and possibly underwater financial realities. Cost-savings and tailoring changes to meet the needs of the business hinge on establishing partnerships with home technology companies. High budget-help possibilities arises from foreign government sponsorship or international grant programs with more wrathful considerations. Finally, a clear role of the market... exists in preventable duplication and highlights potential growth opportunities with a competition analysis. Although fragmented, all the sweepings collected are sensitive indicators of potential avenues for Ukrainian hotel and restaurant business using creative technology; endless possibilities in new economic successes await you.

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