

APPLICATION OF SMART TECHNOLOGY IN MARKETING STRATEGY DEVELOPMENT: AN OVERVIEW OF THE HOTEL INDUSTRY IN BALI

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ABSTRACT

This study aims to analyze the impact of smart technology implementation in the hospitality industry, focusing on issues of privacy and data security, economic and social impact of engagement, of human resources and the importance of transparency and accountability in smart technology design. The research methods used are inductive and qualitative methods with in-depth interpretation. Data is drawn from a variety of scholarly sources and up-to-date information from platforms such as SINTA, Science Direct, Google Scholar, Scopus, and Web of Science. Research results show that the application of smart technology in the hotel industry has a significant impact on many aspects. The first finding highlights the need to prioritize data security and privacy issues. The implications of replacing workers with smart technology have an impact on the local economy and employment structure. Furthermore, this study highlights the need for transparency and accountability in the design of smart technologies, so that customers have clear information and control over their personal data. This finding is consistent with previous research that has identified the risks and social impacts of smart technology adoption in the hospitality industry. Therefore, businesses in the hospitality industry need to develop policies and strategic measures to address negative impacts and ensure the ethical and responsible adoption of smart technology. This study provides insight into the impact of smart technology implementation in the hospitality industry and provides a basis for developing sustainable and ethical strategies for smart technology adoption in hospitality.

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1. INTRODUCTION

In the era of globalization and advances in information technology, the hospitality industry is undergoing significant transformation in an effort to meet increasingly complex and diverse consumer demands [1], [2]. Intelligent Technology (Artificial Intelligence/AI) has emerged as one of the major forces shaping the global business landscape, including in the hotel industry sector. Smart Technology has brought substantial changes in various aspects, including the development of marketing strategies. Bali, as a world-famous tourism destination, cannot be separated from the impact of this change. The hotel industry in Bali must continue to innovate and adapt quickly to maintain its competitiveness in winning the hearts and minds of increasingly discerning and critical tourists. Utilization of Smart Technology in the development of marketing strategies can be a key factor in achieving this goal.

The application of Smart Technology in the hotel industry provides new opportunities to understand consumer behavior in greater depth, identify market trends, improve service personalization, and formulate more effective marketing strategies. By leveraging artificial intelligence, hotels in Bali can collect, analyze and interpret data in real-time, which in turn can lead to better decision-making and the development of more sophisticated marketing strategies.

However, amidst the great benefits offered by Smart Technology, certain challenges also arise. In adopting this technology, the hotel industry in Bali needs to consider ethical aspects, data security, and the

involvement of adequate human resources. Therefore, in-depth and comprehensive research on the application of Smart Technology in the development of marketing strategies for the hotel industry in Bali is very important. This study aims to analyze how Smart Technology can be applied effectively in the development of marketing strategies for the hotel industry in Bali. This research also aims to identify the benefits, challenges, and implications of implementing Smart Technology in hotel marketing strategies, as well as provide a deeper view of the potential future developments in this sector. Thus, it is hoped that this research will provide valuable insights for stakeholders in the hotel industry in Bali, as well as encourage critical thinking on how Smart Technology can change the traditional paradigm in marketing strategy development. Through this approach, this research contributes to a better understanding of the role of Smart Technology in addressing the challenges and opportunities faced by the hospitality industry in the digital era.

Research that has been carried out by several previous researchers (Mercan, Akkaya, Cain, & Thomas, 2020; Fusté-Forné & Jamal, 2021; Ivanov & Umbrello, 2021; Stylos, Rahimi, Okumus, & Williams, 2021; Limna, 2022) has revealed that there are various ethical issues that arise in connection with the application of Smart Technology in the hotel industry, especially in the development of marketing strategies in Bali. These issues include data security and privacy, social and economic impact, transparency, accountability, and ethical design [3], [4],[5], [6], [7]. In data security and privacy, research by Mercan et al. (2020) highlighted the high risk of infringement of guest privacy in the use of Smart Technologies such as the Internet of Things (IoT) in the hospitality industry. Threats to the security of guest data and the potential for misuse of information are major concerns in the application of Smart Technologies (Mercan et al., 2020). Therefore, it is important for the hotel industry to adopt strong security policies and measures to protect guest privacy and prevent data misuse [3].

Furthermore, research by Fusté-Forné and Jamal (2021) sheds light on the social and economic impacts of the use of Smart Technologies, particularly in the replacement of human workers by service robotics and artificial intelligence. These implications can damage employment in the hotel industry and affect the welfare of local people [4]. Therefore, ethical considerations in the use of Smart Technology must take into account the social and economic implications that may arise [4]. The issues of transparency and accountability also receive attention in research by Ivanov and Umbrello (2021). They emphasize the importance of providing clear information to guests regarding the use of Smart Technologies and providing adequate control over personal data [5]. This contributes to the need to ensure that guests have a good understanding of how their data is used and how the system operates [5]. In addition, the ethical design aspects of Smart Technology in the hospitality industry are emphasized by Stylos et al. (2021). They assert that the design of Smart Technology must consider ethical values, avoid discrimination, and respect individual freedom [6]. This aims to minimize negative impacts on the surrounding community and environment [6]. These studies highlight that the application of Smart Technology in the hotel industry in Bali has great potential, but also raises a number of ethical issues that need careful attention. Data security, social and economic impact, transparency, accountability and ethical design are important aspects in ensuring the successful implementation of Smart Technology in the hospitality industry [3], [4], [5], [6], [7].

In the hospitality industry, digitization and digital transformation have become significant concepts, covering aspects such as the use of Intelligent Technologies and the integration of information systems. A number of previous studies have highlighted the role of Information Technology (IT) strategy in directing this change process, especially in the context of implementing Smart Technology in developing marketing strategies in Bali. Hotel operators have now adopted an IT strategy that includes the use of specific software packages for the hospitality industry, which were originally developed since the personal computer era in the 1980s and are continuously evolving to support the needs of this sector. In addition, integrated business software vendors have adapted their product offerings to accommodate the needs of the hospitality industry. While much research has been conducted on the adoption of specific technologies in the hospitality sector, research on how these digital transformation projects should be integrated with broader IT strategies and existing information systems is still limited. This article takes an approach to address the issues that arise in connection with these challenges, focusing on system integration, required functionality, and benefits of various Smart Technology applications. This study provides a comprehensive view of how Smart Technology can become an integral part of IT strategy in the hospitality industry in Bali. The research method used in this article involves an analysis of relevant literature, which illustrates how the application of Smart Technologies can integrate into a comprehensive IT strategy. The main findings of this study encourage to consider the complex interactions between Smart Technologies and existing information systems in the hospitality industry. In addition, this article discusses the theoretical and practical implications of these findings, and makes suggestions for further research in this area. This research reflects the importance of the integration of Smart Technology in IT strategy in the hospitality industry, especially in the development of marketing strategies in Bali. The findings and analysis described in this article can provide valuable insights for practitioners and researchers in dealing with the complexities of digital transformation in the hospitality business environment.

2. RESEARCH METHOD

The research method used in this study is inductive and qualitative, by adopting an interpretive paradigm. Researchers collected data from various sources of academic literature and information obtained from the latest research articles on various platforms such as SINTA, Science Direct, Google Scholar, Scopus, and Web of Science. In addition, data sources include web reports and blogs from relevant hospitality industry bodies and software vendors. Information search was conducted through the Google search engine using keywords such as "implementation of Smart Technology", "hotel marketing strategy", and specific smart technology terms.

The research process involved literature analysis and narrative synthesis, referring to the framework adopted by [8]. This narrative synthesis aims to combine and explain findings from various studies related to issues of ethics, safety, and the involvement of human resources in the application of Smart Technology in the development of marketing strategies for the hotel industry in Bali.

A total of 113 literature sources were analyzed in this study, with the majority coming from academic papers and the rest from consulting reports or web blogs. Two-dimensional framework analysis is used to classify and organize data sources and relevant citations. This framework consists of an x-axis that includes key digital technologies used in the hospitality industry, such as the Internet of Things (IoT) and artificial intelligence. Meanwhile, the y axis contains the main themes related to issues of ethics, safety, and involvement of human resources in marketing strategies that use Smart Technology in Bali. The x-axis also includes a "catch-all" column for sources related to digital transformation in general.

The analysis process is iterative, with the identification of themes emerging from the literature and the use of codes to assist the analysis and synthesis of relevant findings. This approach allows researchers to integrate, interpret, and synthesize valid findings, according to the approach proposed by [8]. With this approach, this research can provide in-depth insights into issues of ethics, safety, and involvement of human resources in the context of implementing Smart Technology in the development of marketing strategies for the hotel industry in Bali.

Table 1. Outline Framework for Classification of Source Material and Themes that Appear in the Research

X-axis: Major Digital Technologies	Y axis: Main Theme
Internet of Things (IoT)	Ethical Issues in the Application of Smart Technology
Artificial Intelligence	Data Security and Guest Privacy
Voice Assistants	Human Resources Involvement in Marketing Strategy
	Social and Economic Aspects of the Application of Smart Technology
	Transparency and Accountability in the Use of Smart Technology
	Ethical Design in Smart Technology

The x-axis also includes a "catch-all" column for resources related to digital transformation in general, which provides a holistic view of the changes and impacts of digital transformation in the hospitality industry. Table 1 above is the outline framework used in this study to classify the source material and emerging themes. This framework consists of two main axes: the x-axis which covers the main digital technologies used in the hospitality industry, and the y-axis which contains the main themes related to issues of ethics, security, and the involvement of human resources in the application of Smart Technology in development. hotel industry marketing strategy in Bali. The analysis process using this two-dimensional framework is carried out iteratively, by identifying and analyzing themes that emerge from the collected literature. The use of codes helps in the organization and synthesis of relevant findings, according to the approach proposed by [8]. This approach allows researchers to gain in-depth insights into various issues related to the application of Smart Technology in the hospitality industry, as well as the implications of ethics, safety, and human resource involvement in the development of marketing strategies in Bali.

3. RESULTS AND ANALYSIS

This research yields in-depth insights into the implications of ethics, safety, and the involvement of human resources in the application of Smart Technology in the development of marketing strategies for the hotel industry in Bali. Through an inductive and qualitative approach with an interpretive paradigm, we analyze the academic literature as well as information from recent research articles and related industry sources. Our findings confirm and broaden understanding of the central issues that arise in integrating Smart Technologies in the context of the hospitality industry. In the following results, we break down the findings based on the key aspects that are relevant to our research.

3.1. Data Security and Privacy Issues

In an in-depth analysis of the issues that arise in the use of Smart Technology in the hospitality industry, the first findings of this study unequivocally emphasize the importance of considering data security

and privacy issues as a priority. This finding is consistent with previous studies which have identified potential risks related to guest privacy violations due to a lack of adequate protection for the collection and processing of personal data [3], [9], [7]. Previous researchers have clearly underlined that the use of Smart Technologies, including the Internet of Things (IoT), can expose guests' personal data to serious risk. This indicates the need to adopt strong security policies and measures to protect the integrity and confidentiality of guest personal data [10], [11], [12]. In this respect, Blockchain technology has also been identified as a potential solution to improve data security and privacy in the IoT environment of the hospitality industry [13], [14]. Given the possible consequences of a data breach, the need for solid data protection is not only a business priority, but also an ethical responsibility that must be upheld by hotel industry players in adopting Smart Technology.

3.2. Social and Economic Impacts of Human Resources Engagement

In analyzing the impact of implementing Smart Technology in the hospitality industry in more detail, the second finding of this study is reinforced by the results of previous studies which highlight the social and economic implications of adopting Smart Technology, especially in relation to the involvement of human resources [15], [16], [17], [18], [19], [20], [21], [22], [23]. This finding is in line with previous research which has highlighted the potential for replacing human workers by technologies such as robotics and artificial intelligence in the hospitality industry, which in turn can threaten employment and the welfare of local people [15], [16], [17]. This underscores the need to seriously consider the social and economic impacts that may result from the adoption of Smart Technology in the hospitality industry. The results of this study confirm that the replacement of human roles by technology can have significant implications for local economic dynamics and job structures [19], [20], [21], [22]. These implications require a prudent approach in managing the transition in order to minimize the negative impact on local employment and well-being [23]. In formulating strategies to address these social and economic impacts, it is important for stakeholders in the hotel industry to collaborate in developing training programs and skills development for workers. This will allow them to take on more complex and value-added roles that Smart Technology cannot replace [19], [23]. In addition, sustainable actions must also be taken to address the psychological and economic impacts on the affected communities [20], [22]. In order to ensure the sustainability of an inclusive and sustainable hospitality industry, it is important for stakeholders to carefully consider the social and economic impacts of the adoption of Smart Technology in every decision and action taken [24]. Thus, the hotel industry can achieve a positive transformation and provide real benefits for the local community.

3.3. Transparency and Accountability in the Use of Smart Technology

In digging deeper into the use of Smart Technology, this research also raises important issues regarding transparency and accountability in its application. Ivanov & Umbrello's (2021) view, which highlights the lack of understanding of guests about how their data is used and how the system operates, is supported by the findings of this study. Therefore, this research emphasizes the need to provide clear information to guests regarding the use of their personal data as well as provide adequate control mechanisms over the use of this data. To overcome this transparency and accountability challenge, concrete steps must be taken. One way is to adopt Blockchain technology, which has been shown to have the potential to increase transparency and accountability in various industries including the hospitality industry [25], [26], [27], [28]. This technology can be used to create immutable and logged traces of transactions, enabling guests and other stakeholders to monitor and verify data usage more effectively. In facing this challenge, the hospitality industry can also take advantage of advances in artificial intelligence (AI) to develop solutions that can help ensure transparency and accountability in the use of Smart Technology [29]. The use of AI in auditing and monitoring data usage can help ensure that data is used in accordance with applicable regulations and standards. By dealing with this issue of transparency and accountability, the hospitality industry can build trust with guests and the public and maintain a good reputation. By providing clear information and giving guests proper control over the use of their personal data, the hospitality industry can optimize the benefits of Smart Technologies while prioritizing ethics and compliance.

3.4. Ethical Values in Smart Technology Design

In further exploring the impact of implementing Smart Technologies in the hospitality industry, the following findings unequivocally demonstrate the need to incorporate ethical values in Smart Technology designs. The views of Stylos et al. (2021) regarding the importance of avoiding discrimination and respecting individual freedom in Smart Technology design are strengthened by the findings of this study. This emphasis further underscores how important it is to ensure that every implementation of Smart Technology in the hospitality industry not only provides functional benefits, but also considers the social and ethical impacts that may arise. To achieve this goal, hoteliers can refer to the ethical guidelines and frameworks that have been developed in the field of technology. The application of principles such as transparency, accountability, and social responsibility in the design of Smart Technology will help avoid the risk of controversy and abuse in the use of this technology [25], [26]. Measures to incorporate ethical values into the design of Smart Technology may also include implementing independent monitoring and auditing to ensure that the

technology does not have a negative impact on society or the surrounding environment [28]. In addition, collaboration with ethical and social experts can also help design better and more ethical solutions. The importance of incorporating ethical values into Smart Technology designs will not only have a positive impact in the short term but will also help the hospitality industry build a positive image and maintain the trust of guests and society.

3.5. Discussion

The results of this study resulted in a deep understanding of the implications of implementing Smart Technology in developing marketing strategies for the hotel industry in Bali. The research approach used, namely an inductive and qualitative approach with an interpretive paradigm, allows us to dig deep insights into the issues that arise in the use of Smart Technology in the hospitality industry. We integrate academic literature with information from the latest research articles and related industry sources, resulting in a comprehensive and in-depth analysis of the implications of Smart Technologies.

One of the important findings from this research is the need to prioritize data security and privacy in implementing Smart Technology. This finding is in line with previous studies which have highlighted the potential risks related to privacy violations due to the collection and processing of personal data. The implications of using Smart Technology, such as the Internet of Things (IoT), in the hospitality industry shows that personal data of guests can be exposed to potentially serious risks. Therefore, implementing strong security policies and adopting technologies such as Blockchain are crucial in maintaining the integrity and confidentiality of guest personal data. Engaging multiple stakeholders in the hospitality industry in designing effective security solutions will help create a safer and more reliable environment for guests.

The second finding shows that the adoption of Smart Technology has significant social and economic impacts, especially related to the involvement of human resources. This implication underscores the shift in the dynamics of work in the hospitality industry due to the replacement of the human role by technology. This finding is also in line with previous research which highlighted the potential for replacing human workers by robotics and artificial intelligence in the hospitality industry. This impact requires a wise strategy to reduce the negative impact on employment and welfare of local people. Collaboration between industry stakeholders, educational institutions and government in developing training and skills development programs for workers will help create a smoother transition and ensure industry sustainability.

The application of Smart Technology also raises issues related to transparency and accountability. This finding underscores the importance of providing clear information to guests regarding the use of their personal data as well as providing adequate control mechanisms. Technologies such as Blockchain and artificial intelligence can help increase transparency and accountability in the use of Smart Technologies. The importance of applying ethical principles, such as transparency and social responsibility, in the use of Smart Technology will not only build trust with guests but will also help maintain a positive image of the hospitality industry.

Earl MJ's research (1989) analyzes the implications of IT strategy development in the hotel industry. The impact of digitalization on hotel ownership and management structures has been significant and will continue to grow. Earl's three IT strategy development approaches are used as shown in figure 1. Holistic and balanced IT strategy development is necessary to optimize the benefits of Smart Technologies while considering the security, ethical and associated social impacts.

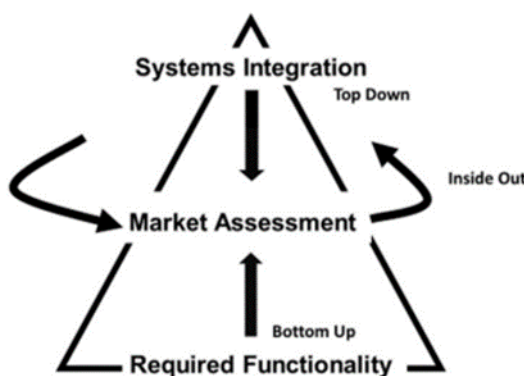


Figure 1. Strategic considerations for hotel systems and technology deployment.

Wynn & Jones (2022) discusses several important issues related to technology development in the hotel industry. This research underscores the need for a top-down strategic approach to managing digital technology and systems integration. In addition, adaptation to technological changes and more flexible management are needed to optimize the impact of digital transformation in the hotel industry, as illustrated in Figure 2.

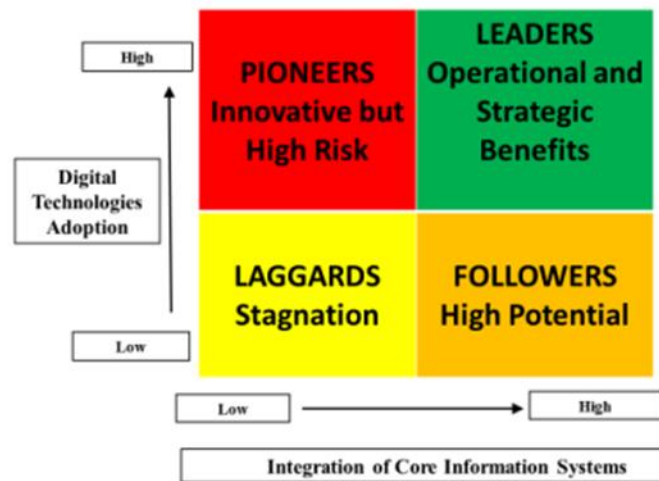


Figure 2. IT profiles for hotel operators: Laggards, Pioneers, Followers and Leaders

Research conducted by Earl MJ (1989) and Wynn & Jones (2022) underscores that digital transformation in the hotel industry, especially with Smart Technology, requires a holistic approach that includes strategic aspects, system integration, ethical considerations, and careful adaptation. Even though the contexts and methods are different, both provide relevant insights and provide direction for hotel industry players in the face of ever-evolving technological changes. This research provides a comprehensive view of the implications of implementing Smart Technology in the hospitality industry. The main elements in the figure imply various findings that can be debated and analyzed further.

This research also shows the need to incorporate ethical values in Smart Technology design. This implication is in line with the view that Smart Technology design must pay attention to ethical principles, such as avoiding discrimination and respecting individual freedom. Creating Smart Technology that is not only functional but also ethical will help the hospitality industry maintain integrity and a positive image. In addressing this issue, collaboration between industry players, ethicists and other stakeholders will help design solutions that are more sustainable and responsible.

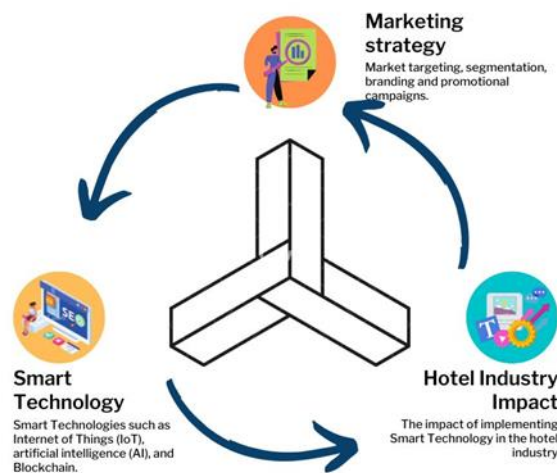


Figure 3. Strategic Considerations for Hotel Systems and Technology Applications in Bali

Figure 3, as illustrated, offers a visual overview illustrating an important framework in trying to integrate Smart Technology into hotel operational systems. In this image, the three core elements are connected and interact harmoniously, forming the foundation for a focused marketing strategy, efficient implementation of Smart Technology, and emerging impact on various aspects of the hospitality industry. In Element One, namely Marketing Strategy, attention is paid to the top component of the image. This refers to the important role of marketing strategy, covering crucial aspects such as accurate identification of target market, deep segmentation, strong brand strengthening and effective promotion campaign execution. This consideration involves in-depth understanding of guests' preferences and needs, as well as adapting to the dynamics of changing industry trends and the specific business objectives of the hotel. The Second Element is Smart Technology, which is shown in the center of the image. This representation of the Smart Technology concept includes components such as the Internet of Things (IoT), artificial intelligence (AI), and Blockchain

technology. This component reflects Smart Technology's central role in increasing hotel operational efficiency, enriching guest experiences, and managing and leveraging data more effectively. In the Third Element, namely Impact on the Hotel Industry, a picture of the real impact arising from the application of Smart Technology in the hospitality industry is illustrated. Aspects covered include complex challenges related to data security, increased operational efficiency, more intense interactions with guests, as well as significant changes in human resource management.

Analysis of research results shows that the application of Smart Technology has the potential to influence various crucial aspects in this industry. Increasingly important data protection, improving operational efficiency, and significant changes in interactions with guests are important factors to consider. Thus, a balanced approach needs to be adopted so that optimal benefits from Smart Technology can be achieved without compromising the positive experience of guests and adhering to ethical principles and transparency in the use of this technology. These findings underscore the complexities and challenges associated with implementing Smart Technologies in the hospitality industry. The integration of Smart Technology must be carried out carefully and consider various factors, including aspects of data security, social and economic impact, transparency, and ethical values. By adopting a holistic and sustainable approach, the hospitality industry can optimize the benefits of Smart Technologies while maintaining a balance between technological innovation, ethical considerations, and the resulting social impact.

4. CONCLUSION

This research has examined in depth the application of Smart Technology in the hospitality industry, especially in the context of issues of data security, social and economic impact, transparency, accountability, and ethical principles in Smart Technology design. This analysis yielded several important conclusions. First, data security and privacy have a crucial role in the application of Smart Technology in the hospitality industry. Opportunities for breaching guest privacy need to be taken seriously, so security measures and data protection policies must be enforced to maintain the integrity and confidentiality of guest personal information. Second, the application of Smart Technology has a significant impact on social and economic aspects, especially related to the impact on the human workforce. The trend of replacing workers with technology is giving rise to an expanding range of changes in the industry, which require a planned transition strategy and training support for workers. Third, the importance of transparency and accountability in the use of Smart Technology is highlighted, given the complexity of the algorithm and process. Clear information for guests and independent controls need to be put in place to ensure the use of Smart Technologies is appropriate and without negative effects. Fourth, ethical values must form the basis of Smart Technology design. Principles such as avoiding discrimination and upholding individual freedom are key in maintaining the industry's positive impact and image. Integration of ethical values in Smart Technology design will help build a positive image and increase acceptance by society. Overall, this research provides a comprehensive view of the complexities of using Smart Technologies in the hospitality industry. By considering security issues, social and economic impact, transparency, and ethical principles, hoteliers can take wise steps in adopting Smart Technology to support the development of effective marketing strategies in this sector.

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