ROLE OF INFORMATION TECHNOLOGY AND TOURISM PROMOTION IN BANGLADESH

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ABSTRACT

Tourism is travel for entertaining and spending relaxation time with a memorable event. Information technology is becoming a major factor in many facets of a nation, even the tourism industry, which is heavily reliant on technology. The collection, handling, and preservation of textual and numerical data facilitate tourists' understanding of the destination and meet their needs. The objective of the study is to find the roles and importance of information technology in tourism promotion in Bangladesh. Besides, this study was to examine the usages of online travel websites, social media platforms, and different blog for travel planning, the significance of information technology for tourism businesses. The study used a qualitative in approach .For conducting this study primary and secondary data has been used. Primary data has been collected following structured questionnaire from the respondent and secondary data has been collected from journal, article and books. To evaluate the responses of the respondents a five-point likert scale was used. The study revealed that information technology can significantly influenced on customer service, communication processes, destination marketing and promotion, sustainable tourism initiatives, customer service and engagement resulting in increased customer satisfaction and loyalty. Respondents opined that technology can be used to raise visitors' awareness and educate them about local culture. Besides, that many individuals prefer mobile applications for booking travel and managing itineraries. The findings of this studies suggest that investing in technological infrastructure, upgrading IT systems, and training employees for enhancement digital skills are essential measures for tourism businesses to maximize the potentiality in that sectors.

INTRODUCTION

Tourism industry has undertaken significant changes in recent years, mainly because of development of information technology. Technology has transformed travelers' planning, scheduling and travel experience. Information technology has revolutionized the planning and reserving process, providing travelers easy access to online travel websites, social media platforms, and virtual reality experiences. It has increased destination visibility, facilitated targeted marketing campaigns, facilitated personalized travel experiences, and enhanced traveler engagement and communication. In addition, the study emphasized the significance of information technology for tourism-related enterprises. A user-friendly website and strong social media presence are essential for effective destination marketing and consumer engagement. The technology of augmented reality has emerged as a potent instrument for tourism promotion, providing immersive experiences that captivate the interest of tourists. For tourism promotion some tools become essential like online platforms, social media, mobile applications, and virtual reality. These tools providing tourists with personalized experiences, immersive virtual excursions and increased accessibility of information. Tourism and progress of technology have been going hand in hand for years; Kim and Hall (2019); Xu et al. (2016). Global tourism has been transforming through Information Communication Technologies (ICTs) since the 1980s. The tourism industry is a dynamic, constantly evolving sector vital to economic growth, employment creation, and cultural exchange. With the advancement of technology, information technology has become an integral part of the tourism industry, transforming numerous facets of tourism marketing and operations. Social media has had a significant impact on the tourism industry, providing travel agencies, airlines, hotels, and resorts with a platform to promote their destinations and services to a large audience. Social media platforms such as Facebook, Instagram and Twitter offer businesses the opportunity to interact with their customers, furnish instantaneous updates and promotional offers, and acquire significant insights into customer feedback and preferences. Over the past decade, there has been a significant transition in how travelers plan and experience their

travels. Internet access, smartphones, and social media platforms have facilitated travelers' access to information, allowing them to investigate, compare, and book their travel arrangements online. This digital transformation has profoundly altered consumer behavior, requiring tourism destinations and businesses to acclimate to the new environment. Not only has information technology revolutionized how travelers access information and make reservations, but it has also created opportunities for destinations and businesses to promote their offerings and engage their target audience in novel ways. In destination marketing and customer engagement, digital marketing strategies, personalized recommendations, virtual reality experiences, and data analytics have become indispensable tools. ICTs developments have certainly changed business practices and strategies as well as industry structures; Hysa et al. (2021); Kuo et al. (2019); Buhalis (1998). Using technologies like augmented reality, location-based services, and social networks, businesses can create tourism-related games like treasure hunts, scavenger hunts, and interactive excursions. These interactive activities provide travelers with a novel and thrilling way to explore destinations, encouraging them to engage more actively with a wide range of tourism products and services. Artificial intelligence (AI) has the potential to revolutionize the tourism industry by providing consumers with personalized suggestions, chatbots for customer service, and predictive analytics for demand forecasting. By analyzing customer data with machine learning algorithms, businesses can provide customers with personalized recommendations and foresee their preferences and behavior patterns, resulting in greater customer satisfaction and loyalty; Bulchand-Gidumal et al. (2024); Samara et al. (2020).

The tourism industry is undergoing a digital transformation, and in order to remain competitive in their sector. Personalization has become crucial to enhance the consumer experience in the tourism industry. Policymakers can utilize these findings to create policies that facilitate the integration of technology in the industry thereby fostering growth and development. Information technology's effects on tourism go beyond business operations and traveller experiences. It has a significant contribution to the economic development, fostering intercultural understanding, and promoting environmentally responsible tourism practices. Understanding the role of information technology in tourism promotion is essential for destinations, businesses, and tourism industry stakeholders to remain competitive and satisfy contemporary travelers' evolving needs and expectations. The utilization of such data can be exploited to augment the caliber of commodities and amenities proffered, culminating in heightened client contentment, exceptional brand standing, and amplified clientele; Hanker (2008); Law et al. (2014).

The scope of the study is to explore and identify the definite roles of IT in tourism promotion, analyzing the effects of IT on marketing of the destination and experiences of travelers, also finding the opportunities. The study was exploring how the planning and reserving process, the implication of technology for tourism enterprises and travel experiences has transformed via information technology. The objective of this study is to evaluate the significance of information technology for development of tourism sectors in Bangladesh.

LITERATURE REVIEW

Technology integration in the tourism sector is an imperative to enhance customer satisfaction and experiences which progress of tourism industry in Bangladesh. Emerging technologies such as virtual reality, augmented reality, and geo-location tools hold enormous potential for tourism promotion advancements in the future. Personalized marketing, enhanced customer service, and the preservation and promotion of local culture and heritage are some strategies for maximizing the benefits of information technology. Balakrishnan et al. (2023) stated that information technology has transformed the tourism industry by facilitating more efficient administration of information, providing personalized experiences to customers, and enhancing communication between businesses and customers. Mathew and Soliman (2021) study specifically focuses on the extended technology acceptance model (TAM) framework and stated that digital content marketing has emerged as a critical component of tourism promotion owing to its potential to offer tailored experiences, foster brand allegiance, and effectively involve customers. Tripura and Avi (2021) found that information technology play an important role for customer engagement and addressing their health and safety concerns, enterprises can cultivate a favorable brand image and enhance their customer base through providing quality services and necessary information. Wang et al. (2020) investigates the potential of integrating 5G and AI technologies with internet of things to augment tourism experiences and facilitate the development of smart tourism. Femenia-Serra and Gretzel (2020) research explores into the effects of influencer marketing on established tourism destinations and furnishes destination management organizations (DMOs) with recommendations on how to proficiently execute this promotional tactic. Khatri (2019) study focus on the Internet's influence such as online registration systems, virtual excursions, and interactive websites have provided travelers with innovative new methods to plan and suggests that businesses that adopt these technologies are likely to have a competitive advantage in the global tourism market. By utilizing online booking systems, virtual excursions, interactive websites, social media, and mobile technologies, businesses can provide customers with a more personalized and engaging experience and strengthen their relationships over time. Alghizzawi et al. (2018) opined social media has become an indispensable instrument for tourism marketing due to its ability to reach a large and diverse audience, to provide consumers with personalized experiences, and to facilitate communication between businesses and customers. Drosos et al. (2017) found that Global Distribution Systems (GDS) have significantly contributed to the expansion of the tourism sector by efficiently linking tourism service providers, including airlines, hotels, and car rental companies, with consumers via a unified electronic platform. Xiang et al. (2017) highlights the crucial role played by online review platforms and social media analytics in the advancement of tourism. Hence, it is advantageous for enterprises in the tourism sector to adopt these technological innovations in their pursuit of establishing a position in a highly competitive and constantly evolving market. Gretzel et al. (2015) points to the potential of ICT for tourism promotion, suggesting that smart tourism can create new opportunities to attract and engage tourists, customize products and services, and contribute to sustainable tourism development practices. The study also highlights some of the obstacles

associated with ICT in tourism and emphasizes the need for effective implementation strategies to realize smart tourism's maximum potential. Buhalis and Amaranggana (2015) emphasized on the notion of "smart tourism destinations" and how the personalization of services can enhance the tourism experience. Smart tourism destinations are defined by the authors as those that utilize information and communication technologies (ICT) to offer travelers customized and context-specific services. Xiang and Gretzel's (2010) has found that the significance of social media in augmenting consumer engagement, facilitating the exchange of experiences, and promoting destination marketing. Navío-Marco et al. (2018) research highlights the importance of robust online visibility for tourism enterprises, encompassing easily navigable website layout and expeditious search mechanisms. Gretzel and Yoo (2008) indicate that online reviews have a notable impact on both the decision-making procedures and the reputation of tourism-oriented enterprises. The utilization of online reviews can furnish travelers with comprehensive and unbiased insights regarding tourist destinations and services, thereby facilitating their ability to make well-informed decisions. Go (1992) the study revealed that individuals heavily depend on these online platforms to make well-informed decisions regarding travel. The significance of social media analytics in acquiring customer feedback and enhancing service quality within the tourism sector has been demonstrated. From the above literature review, it is noticed that there is a significant contribution of information technology to promote the tourism industry and creates the opportunity for the researcher to discover importance between information technology and tourism sectors development in Bangladesh.

MATERIALS AND METHODS

This study's research design is a descriptive in nature. The study employs a structured questionnaire to acquire data from travelers. There is a combination of gender, age, education level, profession/occupation, and primary language among the respondents. The method of sampling that was utilized in this survey was called convenience sampling Bell et al. (2022); Cohen et al. (2017); Kothari, 2004); Kahle and Malhotra (1994). This study's sample consists of approximately 104 national travelers from various regions. The primary data is obtained using survey that was sent to the individuals who were chosen as responders. The data collected through the survey are analyzed using qualitative methods Respondents were invited to participate voluntarily, and anonymity was maintained to protect their privacy. The survey contains queries designed specifically to collect data on the function of information technology in tourism promotion. Secondary data are gathered from a variety of sources, including academic journals, industry reports, novels, and online resources. This data provides a theoretical basis and context for the topic of information technology in tourism promotion.

RESULTS AND DISCUSSIONS

This chapter focuses on the examination of data obtained from an online survey which aimed to investigate the influence of information technology on tourism promotion.
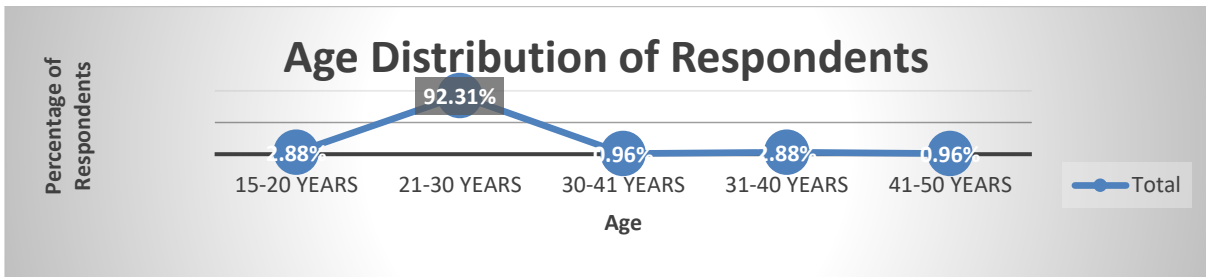
Age

Figure 1. Age Distribution of Respondents

The figure represents the distribution of respondents by age, 92.31 % of all respondents fell within the "21-30 Years" age range, signifying a significant concentration of respondents in this age group. "15-20 Years" and "31-40 Years" each account for 2.88% of respondents, while "30-41 Years" and "41-50 Years" account for just 0.96% of respondents each.
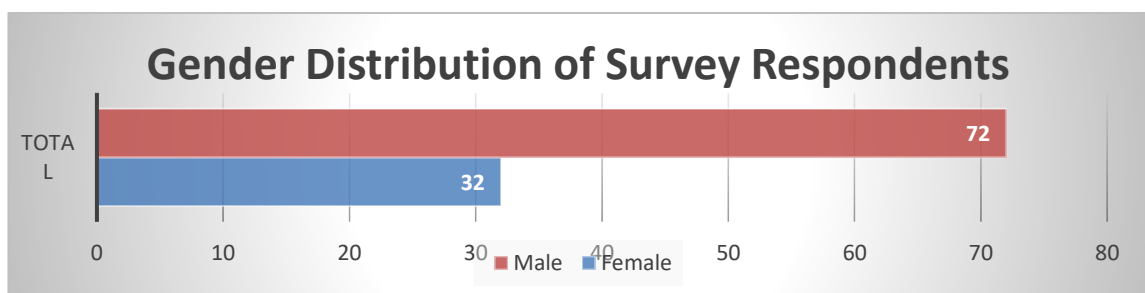
Gender

Figure 2. Gender Distribution of Survey Respondents

Analysis of the figure reveals that there were 30.77 percent female and 69.23 male respondents. There is a discernible gender disparity in the survey sample, with more male respondents than female respondents.

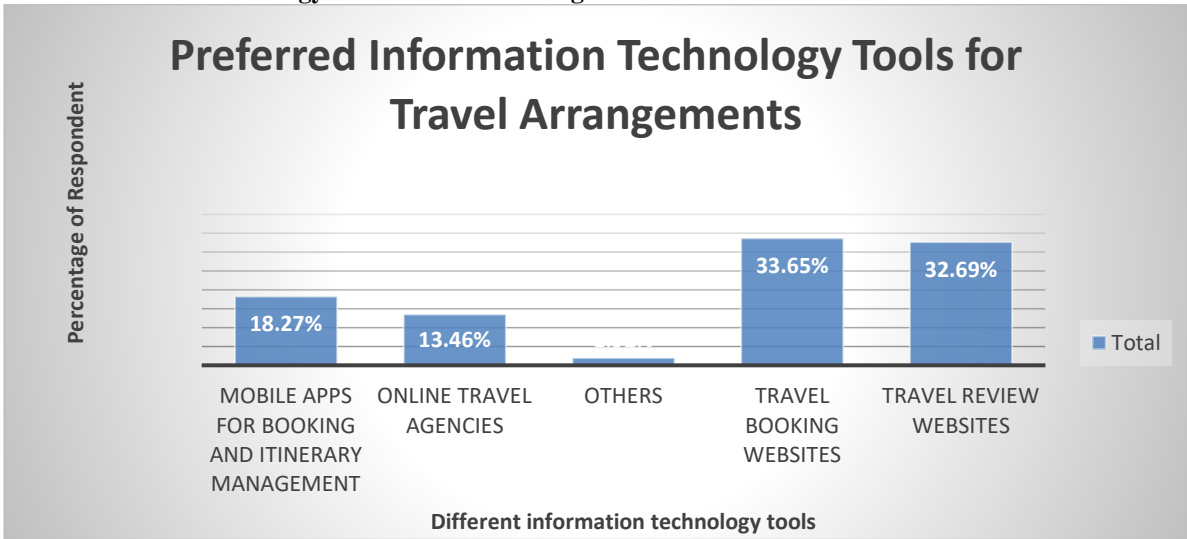**Preferred information technology tools for travel arrangement**

Figure 3. Preferred Information Technology Tools for Travel Arrangements

This figure portrays the proportion of respondents who identified specific information technology instruments as the most useful for travel planning. 33.65% of respondents opined that travel booking through websites for making travel arrangements. This indicates that a sizeable proportion of people utilize specialized websites to search for flights, hotels, and other travel-related services. 32.65% respondent responses, comprises travel review websites, which received a sizeable share of the responses. This indicates that people find it beneficial to access reviews and recommendations from fellow travelers when planning a trip. 18.27% of respondents indicated that mobile applications for booking and itinerary management. This demonstrates that many individuals prefer mobile applications for booking travel and managing itineraries. Online travel agencies accounted for 13.46% of responses, as the relatively lower respondent but still significant preference for using these platforms for comprehensive travel planning and booking services.
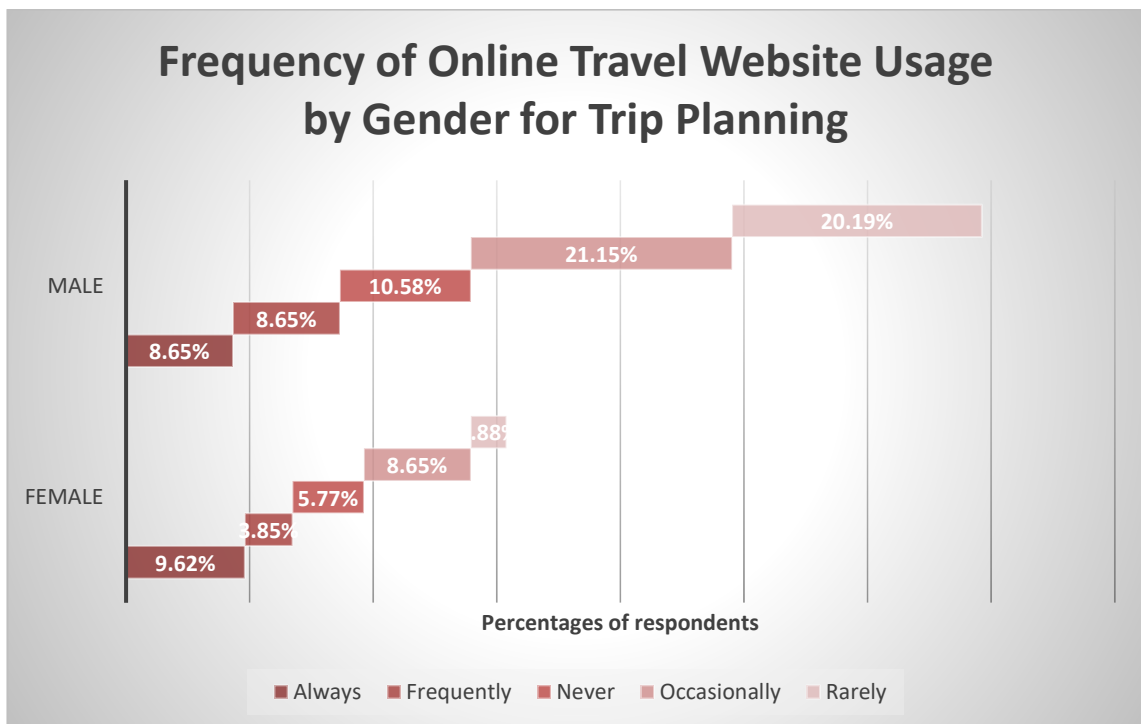
Usages online travel websites to plan trips

Figure 4. Frequency of Online Travel Website Usage by Gender for Trip Planning

The stacked bar figure illustrates the frequency of online travel websites for trip planning. 9.62% of female respondents indicated they always use online travel websites to plan their vacations, while an additional 3.85% reported frequent usage. 8.65% of female respondents favor occasional use, while 5.77% never use such websites. 8.65% of male respondents always utilize online travel websites for trip planning. In addition, 8.65% reported regular usage, while 21.15 % reported occasional usage. Slightly more women, 10.58 per cent, reported never using these websites, while only 20.19 per cent of men reported occasional use. Therefore, 69.23% of the total respondents were male. In comparing genders, 18.27% of all respondents reported consistently using such websites, while 12.50% reported frequent usage. The remaining percentage distribution consists of occasional usage at 29.81%, never usage at 16.35%, and infrequent usage at 23.08%.

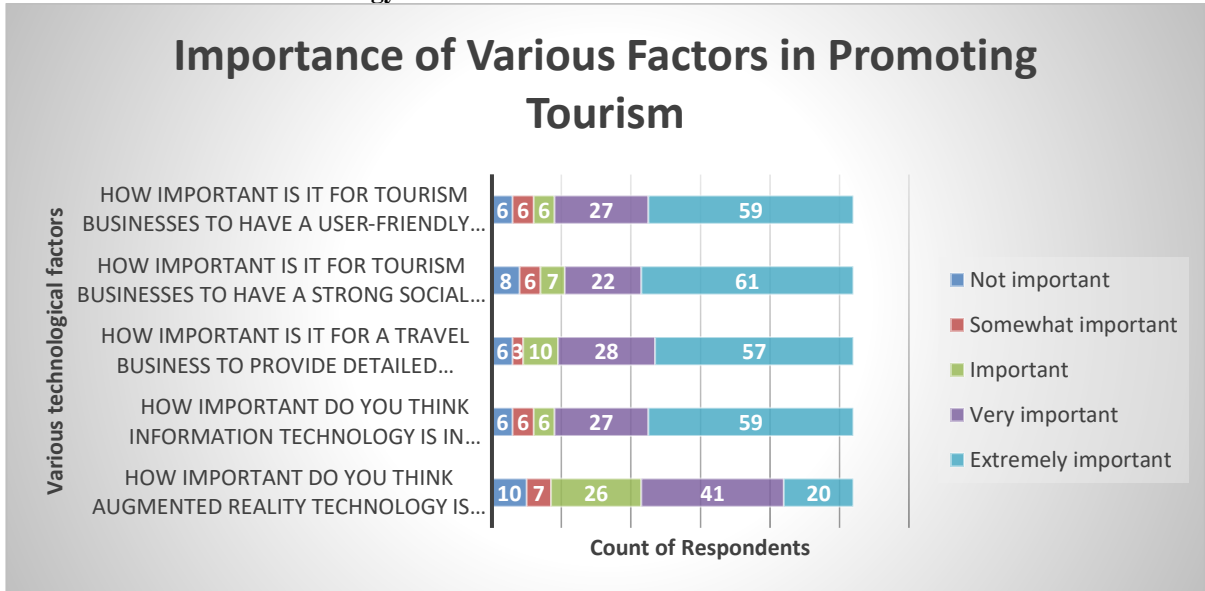**Importance of Information Technology for Tourism Businesses**

Figure 5. Importance of Various Factors in Promoting Tourism

The figure illustrates the significance of various technological factors in promoting tourism; analysis showed that 25.96% respondents rated it as "Very important" and 56.73% individuals as "Extremely important" concerning the significance of information technology in tourism promotion through user friendly website. In particular, 21.15% respondents rated it very important and 58.65% respondent rated it extremely important regarding information technology using social media platform. So, the analysis emphasizes more the significance of social media platforms and user-friendly websites in the promotion of tourism destinations and services. In addition augmented reality technology plays an important role promoting tourism sectors in Bangladesh.

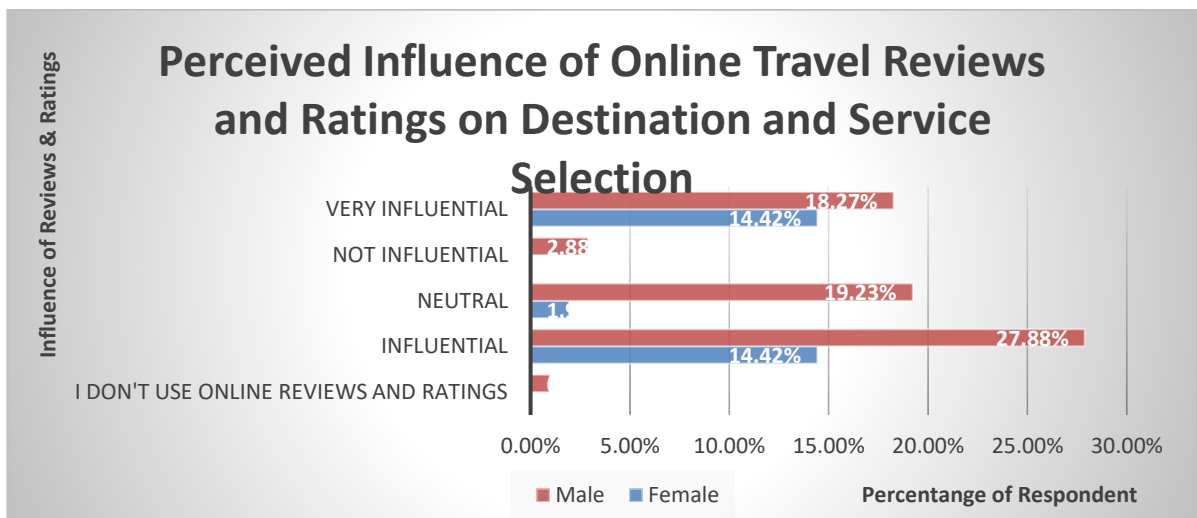**Perceived Influence of Online Travel Reviews and Ratings on Destination and Service Selection**

Figure 6. Perceived Influence of Online Travel Reviews and Ratings on Destination and Service Selection

Upon examination of the figure, more male respondents than female respondents found online evaluations and ratings influential in their decision-making process. The "Influential" segment represents 27.88% of male respondents, substantially more than in the female respondents. In contrast, only 14.42% of female respondents believed online reviews and evaluations influential. Regarding the "Very Influential" segment, male again had a higher response rate than females. For instance, the "Neutral" segment has a greater proportion of male respondents (19.23%) than female respondents (1.92%).

Advantages of Using Information Technology for Tourism Businesses in Marketing and Customer Engagement
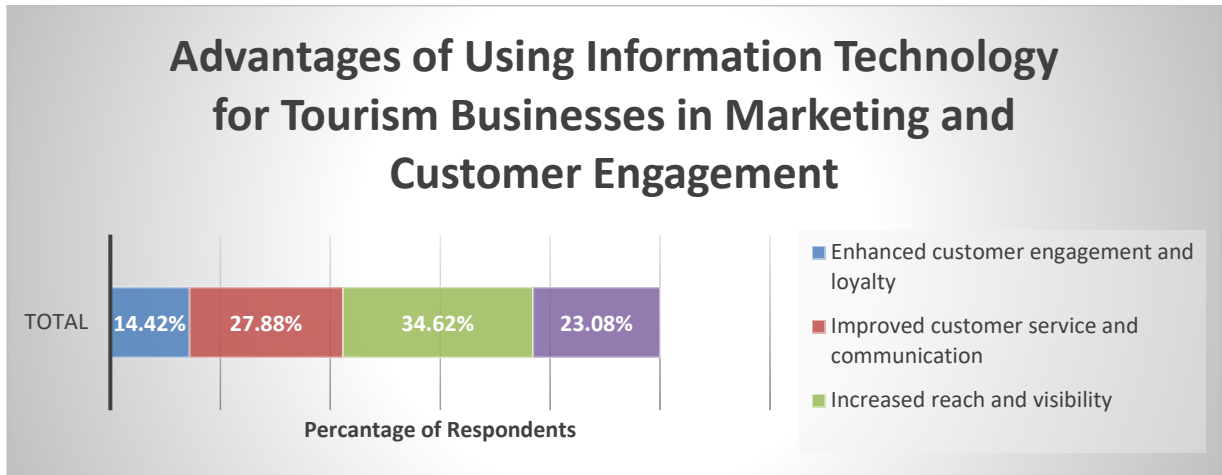

Figure 7. Perceived Influence of Online Travel Reviews and Ratings on Destination and Service Selection

This figure demonstrates the results of a survey examining the prospective advantages of advances in information technology for the tourism industry. The highest percentage of respondents is 34.62% for increased reach and visibility. This indicates that a sizeable proportion of respondents believe that information technology can enhance the visibility of tourism-related businesses, resulting in increased consumer reach and engagement. Improved customer service and communication represent the second-highest percentage, with a total of 27.88%, as indicated by the bar below the first. This indicates that a sizeable proportion of respondents believe that information technology can positively influence customer service and communication processes, resulting in increased customer satisfaction and loyalty.

Contribution of Information Technology to the Preservation and Promotion of Local Culture and Heritage
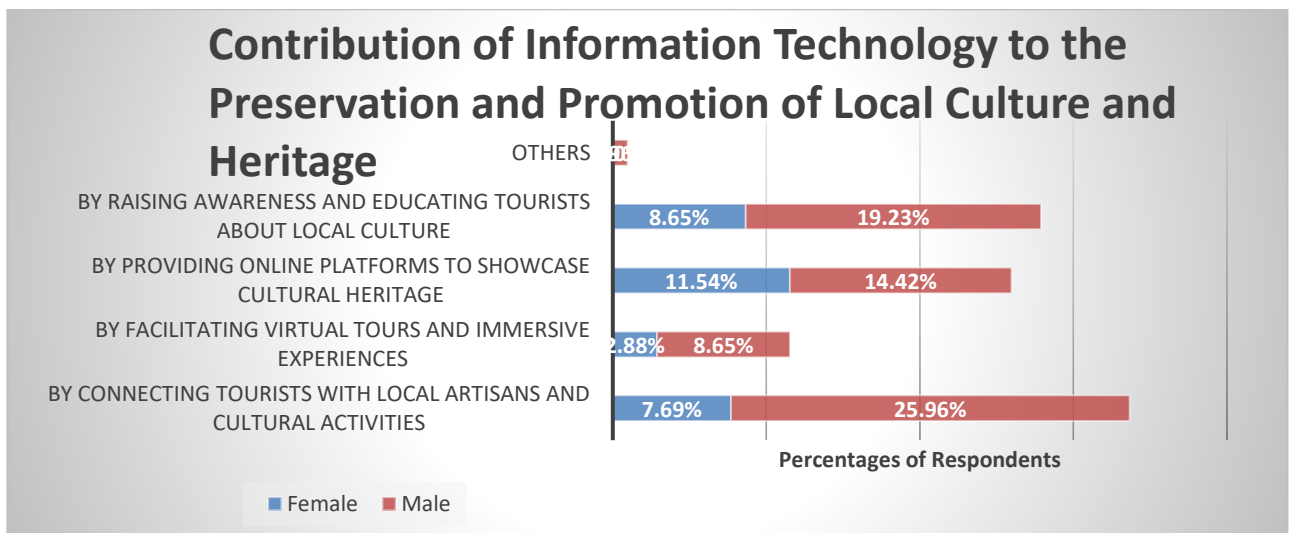

Figure 8. Perceived Influence of Online Travel Reviews and Ratings on Destination and Service Selection

The figure illustrates the distribution of responses to a survey that investigated perceptions regarding the role of information technology in preserving and promoting local culture and heritage. A small percentage of female respondents, 7.69%, believed that information technology could connect visitors with local artisans and cultural activities, according to an analysis of the data. Similarly, 2.88 % of respondents acknowledged the potential for information technology to facilitate virtual excursions and immersive experiences. In addition, 11.54 %of female respondents acknowledged that online platforms could showcase the cultural heritage, and 8.65 % concurred that technology could help raise tourists'

cognizance and enlighten them about local culture. In contrast, substantially more male respondents, 25.96% to be exact, believed that information technology could connect visitors with local artisans and cultural activities. Moreover, 8.65% of respondents acknowledged the potential of information technology to facilitate virtual excursions and immersive experiences. In addition, 14.42% of male respondents acknowledged that online platforms could be used to exhibit cultural heritage, and 19.23% concurred that technology could effectively raise awareness and educate travelers about local culture. Overall, based on the data collected from both genders, 33.65% of respondents believed connecting visitors with local artisans and cultural activities were the most viable option, followed by exhibiting cultural heritage via online platforms, with 25.96%. In contrast, only 11.54 %of respondents believed technology could facilitate virtual excursions and immersive experiences. Finally, 27.88% of respondents believed that technology can be used to raise visitors' awareness and educate them about local culture.

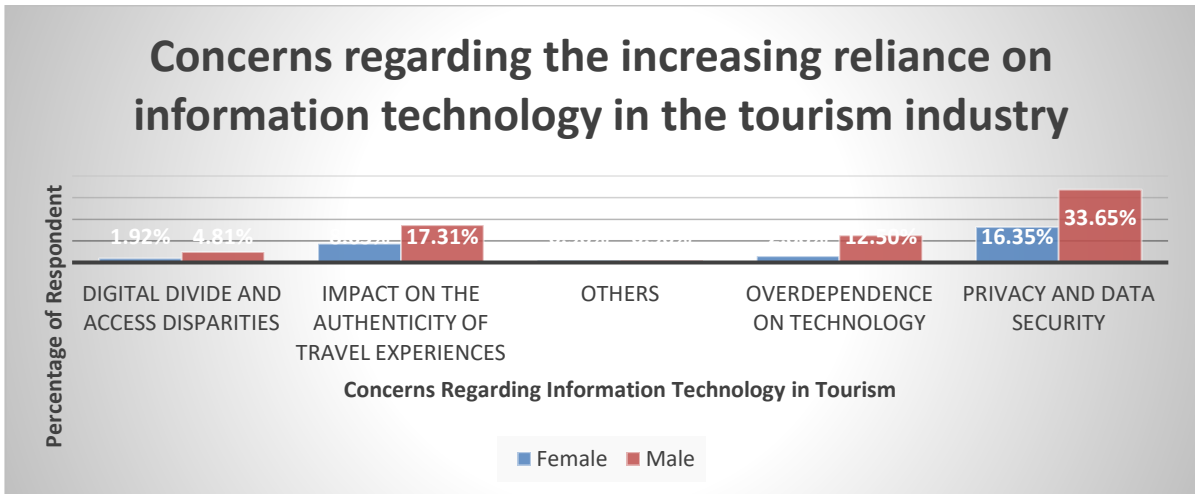**Concerns Regarding the Increasing Reliance on Information Technology in the Tourism Industry**

Figure 9. Concerns regarding the increasing reliance on information technology in the tourism industry

The bar figure shows the gender-based distribution of respondents' concerns regarding the tourism industry's growing reliance on information technology. Intriguingly, the chart demonstrates that male and female respondents have distinct perspectives. Privacy and data security comprise 16.35% of female respondents' responses and is the top concern. With 8.65% of female responses, "Impact on the authenticity of travel experiences" is the second-most significant concern. With 33.65% of male respondents indicating concern, "Privacy and data security" is also a significant concern for men. The second-most significant concern for male respondents is "Impact on the authenticity of travel experiences," which received 17.31% of responses. Notably, the responses for "Digital divide and access disparities" and "Overdependence on technology" are significantly lower for both genders, ranging from 1.92% to 15.38%.This chart provides valuable insights into respondents' concerns regarding the tourism industry's increasing reliance on information technology and how these concerns vary by gender. This chart's findings can provide tourism businesses and policymakers with crucial information for addressing and mitigating these issues to guarantee a balanced and secure technological transformation in the industry.

Advancements in Information Technology for the Benefit of Various Areas in the Tourism Industry
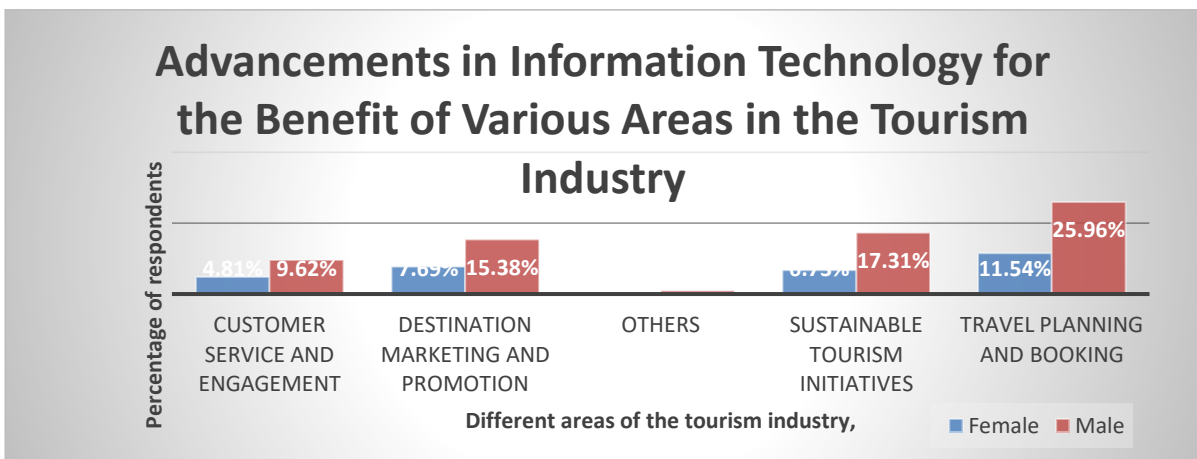

Figure 10. Advancements in Information Technology for the Benefit of Various Areas in the Tourism Industry

The bar figure demonstrates the gender-segregated results of a survey regarding the tourism industry sectors that would benefit most from further advances in information technology. Male respondents were more interested in advances in information technology than female respondents, with 69.23% of male respondents participating in the survey versus 30.77% of female respondents. 37.50% of all respondents identified travel planning and booking as their primary area of interest, with 25.96% male respondents exhibiting greater interest than their female counterparts (11.5%). Moreover, destination marketing and promotion appeared to be the second most significant area of interest, with 23.08% of all respondents believing that technological advances could benefit this area; 15.38% male respondents exhibited a higher level of interest in this area than female respondents (7.69%). Sustainable tourism initiatives and customer service and engagement were cited by 14.42% and 24.04% of respondents, respectively, as the third and fourth most significant areas of interest. 17.31% male respondents were more interested in sustainable tourism initiatives than their female counterparts (6.73%). In contrast, a negligible percentage of respondents (0.96%) identified "others" as an area that could benefit from additional advances in information technology, and only male respondents mentioned this. Overall, the graph demonstrates that respondents strongly desire to investigate how future information technology advancements could benefit various tourism industry sectors. Travel planning and registration could benefit the most from such technologies, followed by destination marketing and promotion, sustainable tourism initiatives, and customer service and engagement. Analyzing these results can provide tourism industry stakeholders with valuable insights for maximizing the benefits of technology.

The Impact of Information Technology Advancements on Different Areas of the Tourism Industry
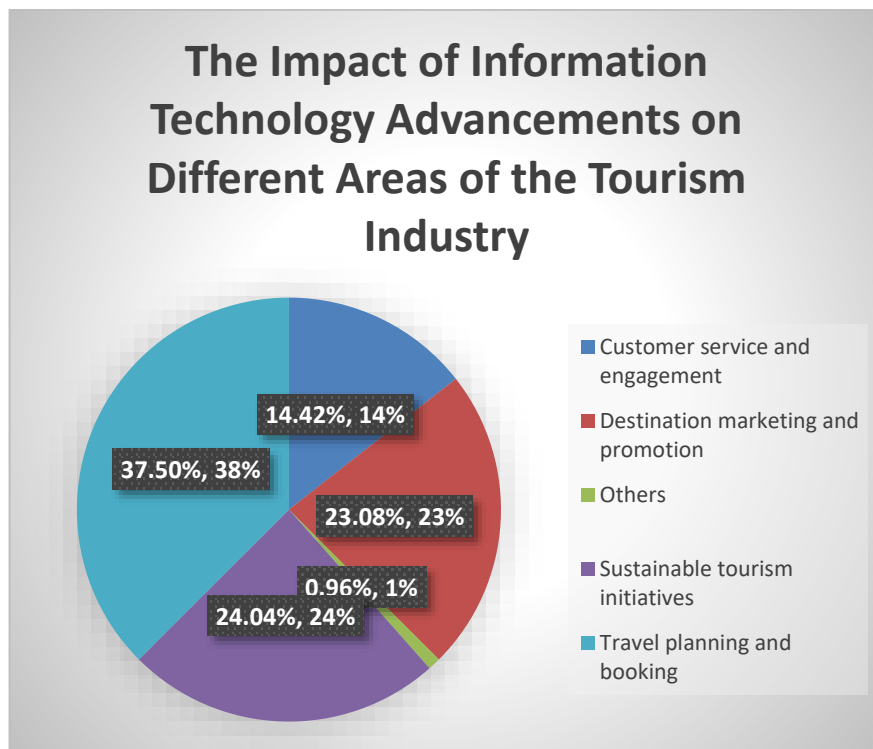

Figure 11. The Impact of Information Technology Advancements on Different Areas of the Tourism Industry

The presented pie figure provides an overview of survey results concerning potential tourism industry sectors that could benefit from additional advances in information technology. The pie chart depicts five labeled segments representing various facets of the tourism industry, such as customer service and engagement, destination marketing and promotion, sustainable tourism initiatives, travel planning and reservation. The most significant proportion of respondents (37.50%) indicated that they believed that travel planning and registration would benefit the most from advances in information technology. This indicates that technological advancements could enhance the efficiency and convenience of travel booking. Additionally, 24.04% of respondents identified sustainable tourism initiatives as another area where technology may have an impact. This indicates that respondents recognize the potential for technology to support and promote environmental sustainability in tourism. Overall, the pie chart illustrates the potential value of significant advancements in information technology to the tourism industry, particularly in the planning and registration of trips. The survey results assist industry professionals and technology developers in determining where to concentrate their efforts to advance the industry.
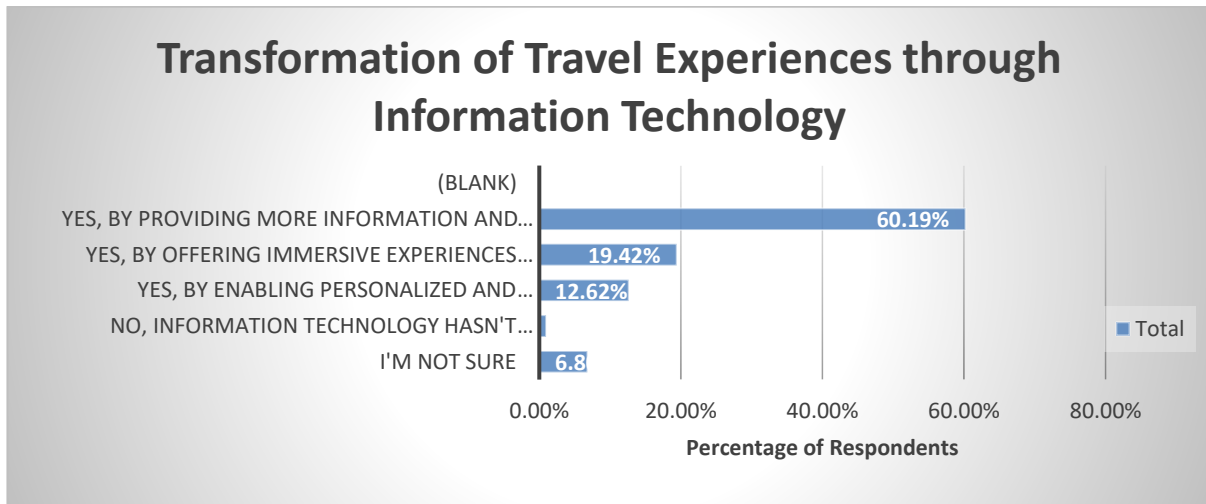
Impact of Information Technology on Travel Experiences

Figure 12. Transformation of Travel Experiences through Information Technology

This bar figure illustrates respondents' responses to a query about the impact of information technology on the experience and perception of various travel destinations. The chart reveals that the majority of respondents (60.19%) believe that information technology has transformed their travel experiences by providing them with more information and insights. In addition, a sizeable percentage of respondents (19.42%) believe that information technology has transformed travel experiences by providing immersive virtual reality and augmented reality experiences. In addition, a notable percentage of respondents (12.62%) believe that information technology has transformed their travel experiences by facilitating personalized and individualized travel. A small percentage of respondents (6.80%) responded "not sure" to the query, while less than 1% (0.97%) stated that information technology had not altered their travel experiences. The data in the bar chart indicate that information technology has significantly impacted how individuals encounter and perceive various travel destinations. Therefore, travel companies should consider integrating technology into their offerings to enhance the customer experience and satisfy consumers' shifting requirements and expectations.

CONCLUSIONS

By addressing the research objectives, valuable insights into the significant role that information technology plays in shaping the future of the tourism industry in Bangladesh and the following findings has been concluded. Most of the tourist preferred travel booking websites and mobile apps through social media platforms for travel arrangement. Analysis emphasizes the significance of various technological factors in tourism promotion such as user friendly website and social media presence helps to augment the reality and information technology. Male tourist is more influenced by online travel reviews and ratings on destination and service selection than female tourist. Finding address that using information technology for tourism businesses in marketing and customer engagement promote the tourism business. Most of the respondents believed that technology can be used to raise visitors' awareness and educate them about local culture and heritage. Analyzing these results can provide a clear picture to tourism industry stakeholders to make travel planning and registration for destination marketing and promotion, sustainable tourism initiatives, and customer service and engagement. The solely contribution of this studies show how an information technology has significantly impacted on individuals encounter and perceive various travel destinations.

Besides, this study recommended for theoretical and managerial implications in the following way, embrace digital transformation for adopting digital solutions and practices to enhance consumer engagement, speed and efficiency, operations optimization, and innovation. Focus on personalization for customizing experiences, products, and services to satisfy particular customers' or users' unique requirements, preferences, and behaviors. This may entail collecting and analyzing consumer data, such as previous purchases or interactions, to provide personalized recommendations or content. Enhancing data security and privacy for safeguarding sensitive data from unauthorized access this include implementing best practices to protect data, encrypting data, monitoring and addressing insider threats, adopting appropriate policies, complying with applicable regulations such as GDPR or CCPA, and leveraging technologies such as block chain or advanced data protection mechanisms to ensure data security and privacy. Fostering collaboration and partnerships is establishing and cultivating relationships and networks between individuals or organizations to achieve a common aim. This may involve establishing communication channels, developing trust, nurturing relationships, sharing resources and expertise, establishing shared objectives and values, and fostering a collaborative culture. In addition maintaining flexibility and adapting to change for capacity of individuals or organizations to respond rapidly and effectively to novel or shifting circumstances.

This research paper aims to provide valuable insights into the role of information technology in the tourism industry. It needs a lot of work to conduct exhaustive research in the field of information technology and its effects on the tourism industry. We have collected few numbers of responses from domestic tourist this was not enough to represent the

significance of information technology in tourism industry at a whole. Despite these limitations, we tried to provide insightful information regarding the roles of information technology in the tourism industry. The findings can serve as a basis for future research considering the foreign tourist and contribute to ongoing research on leveraging technology for sustainable tourism development.

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