



Exploring the Effects of Technological Advancements on Hotel Guests and Employees in Metro Manila: A Comparative Study

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Abstract

The guests and employees of a 3-star hotel in Metro Manila share a similar perspective on the technological advancements that are being implemented and made available in their establishments. These technological advances have a positive impact on both guests and employees as they greatly improve their stay in the hotel. Although the survey identified some issues, they were mostly rated as moderate by both guests and staff, which suggests that they can be minimized or resolved. Furthermore, there was a significant difference in the impact of technological advances on guests and employees. This highlights the need for the hospitality industry to embrace technological advances in order to provide guests with improved services and employees with the tools they need to work more efficiently. However, it is important to note that this study has some limitations. It only covers guests and employees in a 3-star hotel, which may not be representative of all hotels in the area. Therefore, it is recommended to widen the scope of the study to include hotels with 4 and 5-star ratings to gain a more comprehensive understanding of the subject. Further studies could also examine how technological advances impact the hotel's bottom line and the overall guest experience.

Keywords: *Technological Advancement, Hospitality Industry, Guest Experience, Employee Perspectives, Metro Manila*

INTRODUCTION

Technology encompasses all human interventions and modifications in the natural environment to serve their purposes. It plays a crucial role in every business, including the hospitality industry, and is a significant driver of industry change. The rapid development of the world is strongly influenced by digitalization, which affects both social and economic sectors.

Innovation and technology are complex phenomena in tourism, particularly regarding information communication technology and the internet. In the accommodation sector, technology plays a significant role in enhancing customer experience and improving hotel operations' efficiency and quality. The growing demand for technological advances from hospitality stakeholders drives greater technological developments and upgrades to improve guest service management.

Introducing technological innovations in various areas of hotel services presents opportunities and challenges for hotel managers and employees, customers, and guests. Successful implementation of technology in hotel organizations can prevent and avoid obstacles and difficulties. Hence, this research focuses on how technological advancements impact selected major stakeholders in the hotel industry, namely guests and employees, and the current technology adopted and its challenges.

According to Attala's (2019) article entitled "Smart Technology Reshaping the Hotel Industry," smart hotel technology provides various cost savings and income opportunities across operations, guest experience, and marketing, enabling hotel owners to achieve new levels of

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profitability. The impact of technology on the tourism industry is significant, with international tourism accounting for 10% of global GDP. The development and application of new technology is one of several variables that contribute to these results.

Technological advancement has impacted different industries, leading to improved services. In the hotel industry, the use of technological advancement has a considerable impact, particularly in the front office and guest service systems, significantly affecting how hotel establishments function.

The following hypotheses were formulated using $>.05$ level of significance in the quantitative part of this study.

Ho1: There is no significant difference between the analysis of guests and employees on the effects of technological advancement in hotel establishments in Metro Manila.

Ho2: There is no significant difference between the analysis of guests and employees on challenges faced by the hotel establishment in maximizing the use of these technological advancement.

LITERATURE REVIEW

Technological Advancement in Hotel Establishments

The tourism industry has undergone significant changes due to technological advancements. According to the UNWTO (Tourism Highlights, 2016), international tourism now contributes 10% of global GDP. The emergence of new technologies is among the factors that have contributed to this growth. In the hospitality industry, the use of technology has revolutionized hotel management, making it more efficient and easier to operate. With hotel management systems accessible on phones, tablets, and computers, hotel owners can monitor operations and communicate with employees from anywhere at any time. This has enabled hotel establishments around the world to use smart technology to provide unique, personalized services to guests, leading to increased revenue and customer loyalty (Bhatnagar, 2020).

As technology continues to evolve, more hotel establishments are adopting innovative solutions to increase efficiency and add value to customer experiences. A report by Oracle Hospitality surveyed almost 3,000 US and European travelers and found that 64% of guests believe it is crucial for hotel owners to invest in technology to enhance their experiences (Carter, 2017). Booking systems, reservations, front office operations, and guest service systems are among the most significant technological advancements in the hotel industry, as highlighted by Khan and Hossain (2018). However, the implementation of these innovations may vary depending on the establishment's location and budget.

In light of the Covid-19 pandemic, hotel establishments have been forced to adapt to new safety and health protocols. Baratti (2020) notes that scannable QR codes and live chatbots are among the new customer-facing tech tools that are being deployed to replace traditional restaurant menus and in-room paper compendiums. By using technology to increase efficiency and ensure the safety of guests and employees, hotel establishments can build customer trust and confidence. Overall, the integration of technology in the tourism and hospitality industry has been a game-changer. As new technologies emerge, hotel establishments must continue to innovate and adapt to ensure the best possible customer experience.

Technological Advancement in Philippine Hotel Establishments

Hotels in the Philippines are adopting various information technology to boost their productivity, efficiency, and profitability while providing excellent customer service (Castillo et al., 2014; Dela Santa & Agatep, 2016). Though hotels are open to technological advancements, they are hardly tech enthusiasts as most hotels fall under the medium-tech category. Information and communication technology (ICT) has played a significant role in the growth of the tourism industry,

and computerized reservation systems (CRS) were among the first implementations of IT worldwide (Valencia, n.d.). However, the adaptation of technological advancements in the Philippines' hotels is slower compared to other countries. Though the government provides incentives for modernizing accommodations, some hotel owners consider advanced technology unnecessary if they meet customer expectations (Dela Santa & Agatep, 2016).

A recent study showed that the infusion of technology in hotels in the Philippines has contributed significantly to the economy (Hernandez, 2021). International standards, such as those set by the International Organization for Standardization and Total Management Quality, have helped the hotel industry become more competitive and effective. Technology has also helped reduce costs and improve customer satisfaction in the region, particularly in CALABARZON, where guests have noted the importance of social media as a valuable marketing tool (Hernandez, 2021). Another study conducted in Batangas, Philippines, demonstrated that computerized systems had a significant impact on the accommodations sector, particularly in reservations and front office operations (Castillo et al., 2014). The findings revealed that computerized systems not only made work easier for employees but also provided customers with a simple way of reserving hotels, especially during peak seasons. With a positive impact on the guest service system and front office operations, many hotels in the Philippines have now shifted to computerized systems to replace the manual system (Castillo et al., 2014).

Use of Technological Advancement in Rooms Division Specifically Registration, Front Office, and Housekeeping

The usage of technology has been in demand in different industries. In the accommodations sector, these technologies are used in different areas. According to an article written by Attala (2019), smart hotel technology offers a variety of cost savings and income opportunities across operations, guest experience, and marketing, allowing hotel owners to achieve new levels of profitability. In the article, it stated 10 ways that technology will reshape the hotel industry in the future. These includes smart energy management in hotels, predictive maintenance in different department, smart guest experiences, huge amount of data protection, smart ways reservation of parking, remote Check-In/Check-Out, mobile room keys, smart room service, and Online Reputation Management Technology. The trends mentioned are just the start of technological advancement in hotel industry. There are still plenty of innovations that will have an impact on hotel industry.

The accommodations sector is continuing to evolve and change for the better because of technological advancements. Smart technology is one of the most important factors that hotels use to not just meet, but surpass, guest expectations, hence improving the overall travel experience. Smart technology can improve the hotel experience in a variety of ways today, many of which make traveling easier and more pleasant. Hotel customers may now customize their rooms using voice commands and smart controls that can access various devices, as well as access virtual room service and swiftly meet amenity demands. These smart technologies are not just enjoyed by the guests and customers, rather it is also beneficial to the management and the employees. Furthermore, hotel owners can save money by implementing smart technology. When guestrooms are not in use, hotel employees can switch to energy-saving settings to save electricity and foster a more environmentally friendly room. Smart hotel technology makes it easier for hotel employees to perform repairs, which guests appreciate. Repair needs are dialed into electronic devices, which employees may monitor remotely, using this technology. This enables employees to quickly alert both hotel guests and maintenance personnel, resulting in a far more seamless and efficient repair procedure (Haude, 2020).

According to Kazandzhieva and Ilieva (2017), in the field of hotel industry, technology plays a significant role, not just for consumers, but also for hotel owners. Hotel establishments generally

utilize technology for two reasons. One, managers acquire direct information on their guests' behavior using technology, and second, hotel establishments deliver better and more specialized accommodations and services to their customers and provide exceeded expectations using these advance technologies.

Bansal (n.d.) also stated that the use of technology has made every front desk officer's job a lot easier. Establishments can also check the punctuality of each employee that are working in a specific hotel. With just one click, a hotel front desk personnel can check the status of bookings and rooms. By using technology, it has become much easier to recall the preferences and choices of regular visitors, thus boosting the quality product and services provided to them. The front office has greatly evolved over the years because of technological advancements. One of the upgrades that has taken place in the front office of a hotel is the Cloud PMS which allows hotel staff to verify room status even from afar. The front-desk personnel may access and conduct the visitor bookings while sitting anywhere. The Cloud PMS allows management to access data and performance from any location, allowing managers to spend more time in front of the guests and engage with them. Correspondingly, many large hotels offer guests the option to register for a hotel stay before arriving. This can significantly reduce the waiting time for registration. For large properties, not only do guests pre-register, but hotel establishments also offer a smartphone app that allows guest to use smartphones as a room key. This may allow guests to go directly to the hotel room from the airport (Lam, 2016).

Kibe, Ogutu and Ojwach (2019), indicated how mobile applications and technology affects the front office operations respectively. Kibe and Ojwach stated that Mobile application made it efficient and easier not only for the Front Office Operations but also for the majority of the customers in a way that it helps in enhancing the customer's decision of choosing the service that will make them satisfied and become loyal to the hotel especially it helps the guests to get in touch with the hotel more convenient and easier to access to the establishment. In the study also indicated how technology helped in paying guests bills with fast, reliable, secure transaction.

Puerto (2021) stated that in the 1980s or 1990s, PMS systems were brought to limelight, before cloud software was ever considered in the picture. PMS worked as the central point of all hotel operations. It includes the checking in and out of guests, handling reservations, managing room rates, room assignments, and billing. It's one of the core features that define the hotel front office operations. For this reason, hotels have been going through difficulties in changing the system as it would affect various parts of the business that would lead to changes like staff retraining. There is also a danger of data loss and hardware reconfiguration. To escape the inconvenience, most hotels would opt for the old systems rather than going through complicated changes. As a result, it hindered the possibility of growing innovations. But because of the technological advancements happening in the hospitality industry, cloud-based software is beginning to dominate the industry. This software structure allows the hotel to provide more secure data services and help the hotel business operation to function properly and efficiently.

In an article by Shivam (2015), it was stated that the rising technology has made its way to the front desk and helped in assisting guests simultaneously. Comparing the times where hotels are struggling to assist several guests at a time, the accommodation sector at present times have leveled up and it is mainly because of the technological advancements adapted by the hospitality industry. Devices like smartphones, tablets, and computers made everything easier.

Technology has undeniably transformed the front office operations into the hotel's core feature. The change in how front office work is extremely evident. Nowadays, it's because of the evolution of technology. All guest data are stored in a property management system, which is used to organize the hotel records, instead of having room racks. Electronic mail is the new pneumatic tube system. With just one click, a letter would be sent or received by a recipient. All these are

possible because of the technological advancements taking over the hospitality industry (Szende & Reddy, 2017).

Challenges Faced in Utilizing Different Technological Advancements in Accommodations Sector

As technology become more rampant in the hotel industry, challenges cannot be avoided because of these innovations and advancements. According to Nain A. (2018), the Rising Technological Demand is one of the challenges faced by hotel establishments these days. Because of modern technology and its influence on the daily lives of the people, it has badly affected the way hotel guests perceive the service, assistance, and performance of the hotel. Technology has significantly influenced the hotel reputation from any guests and competitors. Guests are prepared to engage in services that provide new technologies according to the Oracle Hotel 2025 poll, which was performed in February 2017. The luxury of having free Wi-Fi started it all, but nowadays it's almost a necessity. Although technology offers limitless opportunities to boost hotel efficiency, hoteliers must achieve the correct balance between machine and human involvement. Long-term business success involves investment in technology, but this should not lead to destruction of personal service. A close competition is also a challenge in using these technologies. One hotel establishment should always be in line with the technological advancement of other competing hotels for it would help it gain and maintain regular customers.

In addition, Ansah, A., et al., (2012), technology is becoming extremely relevant in people's daily lives. Because of this, many people have led to fears that computers used in hotel establishments and data might be corrupted and altered. Data acquired on customers must be secured from misuse, which requires the use of effective security measures to maintain data integrity and confidentiality. Hotel chains may spend a significant amount of money on both hardware and software security measures, like acquiring firewalls and third-party backup software to secure client data or employing backup companies to take charge of backup. Another negative result might be the loss of a significant amount of money during system outages, or when the systems are not operational. These challenges faced by hotel establishments is not just existing in certain place, in fact it is existing in almost all hotel establishments.

As technological advancement in hotel establishments is being utilized, many still are lacking and can't cope up with these innovations. The main problem with advanced systems used in some hotels is that it can't be utilized hotel establishments. Thus, Hospitality organizations are not capable of centralizing, necessitating specialized solutions to bring technological advancements in most hotel establishments. The inability of hotel technology to communicate with one another might place unexpected constraints on the service delivery process. The loss of income is only one of the numerous consequences that disorganized information systems may have on hotels because of different technological advancement available in hotels. Incompatibility also has an impact on the guest experience, causing confusion to the guests leading to the misuse of the said technology. Guests who don't have a wide knowledge about a certain technology would have a hard time figuring out the use of it (Hussain, 2019). In connection, according to Newman, E. (2018), hotels are a web of software, and the main problem for any hotelier is to first integrate all the software efficiently, and then to ensure that the integrated software is accurately interacting with one another, ideally in real time. Unfortunately, the cost of achieving this integration remains considerable, which is a barrier for many hoteliers. In addition to, many of these technological innovations are not easy to maintain because of its complexity. Some parts might not be available in the local market making it difficult to fix if a problem occurs.

As the industry changes structurally, and the utilization of technology become more rampant, workers in traditional industries become obsolete, lose their jobs, and emerging industries suffer from labor shortages. Current structural changes, primarily caused by information technology, are

no exception. For example, skilled hoteliers might lose job in the future due to the increased use of large-scale advance technology and industrial robots (Muroyama & Guyford, 1988).

In an article by Potter, K. (2019), it was stated that bringing devices online and linking them to one another daily brings efficiency and optimizations. However, technological advancement also creates risks examples are cyber-attacks and private data breaches. Through online, many hackers can take advantage of equipment that is part of the hotel's digital structure. As an example, in the hotel-casino in London, a hacker gained access to the high-roller database via a thermometer that is in the lobby fish tank which is connected online. The attackers gained access to the network via the thermostat, then discovered the high-roller database and pulled data across the network, out the thermostat, and into the cloud.

RESEARCH METHOD

This study utilized quantitative method specifically it used a comparative research design – survey method to know the differences and similarities on the guests and employee perspectives. The researchers used this research design to know how technological advancement affects the hotel industry based on the answers by the stakeholders specifically the employees and the guests. The sampling technique that was used to choose the respondent of this study is purposive sampling. This was used to intentionally pick respondents that are in line with the research. The sample size was calculated using the G*Power 3.0 software program (UCLA).

The researchers were able to gather 41 employees or 28.9% of the total number of respondents and 101 guests or 71.1 percent of the total number of respondents. In total, 142 respondents answered the survey questionnaire.

Research Instrument

The researchers developed a self-made survey instrument following the different related literatures and studies as the basis for specific questions that are included in the survey instrument. The research instrument used in this study is survey questionnaire. The questionnaire was divided into four major parts that includes: Part I. Type of Stakeholder; Part II. Technological Advancement in Hotel Establishments in Metro Manila; Part III. Technological Advancement in Rooms Division Department, and; Part IV. Challenges in Using Technology in Hotel Establishments. A Multiple-Choice question is used for part I and part II. On the other hand, a four-point Likert Scale was used for parts III and IV to determine their response on the questions.

Data Gathering Procedure

The survey questionnaires were disseminated virtually by the researchers from the month of April to May using an internet platform, specifically Google forms, to better communicate and avoid physical contact with the chosen respondents. Given the letter of consent, the researchers guaranteed the confidentiality of any information provided by the respondents. The researchers found the chosen respondents in various hotels and asked for help to disseminate it to the employees and co-workers. After the survey was completed, the answers were tallied and sent to the researchers for further analysis and interpretation. The objectives and purpose of this survey are explained to the respondents, as is the confidentiality of any personal information that will only be utilized in this study. researchers are present while the questionnaires are being filled out in order to address the respondents' questions and concerns.

Data Analysis

1. Frequency Distribution

Frequency Distribution was utilized to know percentage of how many respondents answered the survey questionnaire based on the demographic profile whether they are employee or a guest. Frequency distribution will also be used to know the percentage of the responses on the items that

are used the survey questionnaire.

2. Weighted Mean

Weighted mean was used in this study for two purposes. First is to get the weighted mean of the answers of the respondents per main variable which are the availability of technological advancements in hotel establishments in Metro Manila, the effects of these technological advancements in hotel establishments, and the challenges faced in utilizing these technological advancements, collectively. Second is to get weighted mean per item to give a verbal interpretation about the respondent's answer on a specific question in the survey questionnaire.

3. Standard Deviation

Standard deviation was also utilized in this study to provide an indication on how consistent or far the answers of the respondents comparing it to weighted mean to the questions in the survey questionnaire.

4. Test of Normality using Shapiro-Wilk

The test of normality was utilized to know if the answers of the respondents on the survey questionnaire are normally distributed. The Shapiro-Wilk test determines if a certain variable is distributed normally in a population. Through test of normality, researchers were able to know what statistical treatment would be used for comparison that is suitable in this study which is Non-Parametric Test (Mann Whitney Test).

5. Mann Whitney Test

The "Mann Whitney Test", based on the result of the test of normality, was utilized in this research to compare if there is a significant difference on how technological advancement affects the respondents which are the guests and the employees. If the p-value is $> .05$, then there is no significant difference. On the other hand, if the p-value is $< .05$, then there is a significant difference.

FINDINGS AND DISCUSSION

Results showed the various technology adopted by the identified stakeholders, its impacts, and challenges.

Table 1. Different Technological Advancement in Three-stars hotels

Technological Advancement in Hotel Establishments in Metro Manila	Overall		Employees		Guests	
	f	%	f	%	f	%
Cashless Payment	121	85.21	39	27.46	82	57.75
Online Booking using different online platforms such as websites and mobile applications	120	84.51	33	23.24	87	61.27
Availability of Wi-Fi in the establishment	120	84.51	34	23.94	86	60.56
Availability of CCTV Cameras in the establishment	118	83.10	38	26.76	80	56.34
Availability of an Intercom System in rooms that provides better communication between guests and employees	98	69.01	29	20.42	69	48.59
Usage of Smart Room Keys	95	66.90	26	18.31	69	48.59
Availability of Hotel PMS to accommodate guests	91	64.08	35	24.65	56	39.44
Wireless Contact among employees to assist guests simultaneously	88	61.97	28	19.72	60	42.25

Accessibility of Mobile App	86	60.56	30	21.13	56	39.44
Availability of computers used in servicing guests	86	60.56	33	23.24	53	37.32
Availability of Smart TV	84	59.15	22	15.49	62	43.66
The existence of Social Networking Site of the hotel	83	58.45	27	19.01	56	39.44
Availability of QR codes for menus and in-room paper compendiums	73	51.41	19	13.38	54	38.03
Voice control air conditioner in rooms	40	28.17	11	7.75	29	20.42
Others (please specify):	2	1.41	1	0.70	1	0.70

Based on the table above, out of the fourteen variables there are four major technological advancements that got the highest overall frequency, and one variable got the lowest overall frequency from both the guests and employees. This means that based on the observation of the respondents, among the variables given on the questionnaire, there four major technological advancements that are used by most three stars hotels and one technological advancement that is rarely visible in different hotel establishments in Metro Manila with 3-star rating.

The availability of cashless payment was the highest overall frequency with over 121 answers, 39 from employees, 82 from guests or 85.21% of the total respondents. According to the World Travel and Tourism Council (2019), travel service providers, hotel accommodations, and other related establishments should recognize that cashless or mobile payments are mostly demanded by travelers and customers. In addition, different travel service providers and establishments are implementing cashless payments options to help travelers and guests pay for the products and services they use. This implies that both the guests and employees see cashless payment as one the most used technological advancements in hotel establishments.

The availability of Wi-Fi in the establishment got the second highest overall frequency with 120 answers, 34 from employees, 86 from guests, or 84.51% of the total number of respondents. According to a recent study conducted by Motorola Solutions (2022), more than 90% of today's visitors emphasize the importance of hospitality Wi-Fi. In fact, more than 75% of guests say the availability and quality of Wi-Fi service might be a deal-breaker when booking with any hospitality firm. Consumers also want to be able to use the internet on a variety of personal devices. In addition, Wi-Fi is also beneficial to employees because it helps them in connecting with other staff and the guests as well. Thus, the availability of Wi-Fi as a technological advancement is rampant in hotel establishments for it helps both the guests and the employees.

With 120 answers, 33 from employees, 87 from guests or 84.51% of the total number of respondents as well, the availability of online booking using different platforms had the third highest number of overall frequencies. Study conducted by Lien, et al., (2015), tourists who travel prefer to use an online hotel booking system because of its convenience in searching for detailed information regarding the brand image, price, location, and the availability. In addition, the convenience of an online hotel booking system helps employees in their tasks. Hence, the use of online booking using different platforms is widely used in different hotel establishments for convenience of both the guests and employees.

The availability of CCTV cameras was the fourth highest overall frequency with 118 answers, 38 from employees, 80 from guests, or 83.10% of the total number of respondents. According to Nagaj and Žuromskaite (2020), hotel managers consider the installation of CCTV cameras in the vicinity helps in reducing accidents and promotes security to guests. In addition, guests also feel safer and secure with the presence of CCTV cameras. Thus, CCTV cameras in hotel establishments are widely used and available for the safety and security of both the guests

and employees.

Lastly, the 13th variable, the availability of voice control air conditioner in rooms got the lowest overall frequency with 40 answers, 11 from employees, 29 from guests, or about 28.17% of the total number of respondents. According to Buhalis and Moldavska (2021), the installation of voice- controlled equipment requires a lot of budget and effort. In addition, from the guest's perspective, some guests are unfamiliar with the said technology. This implies that the availability of voice control or voice assistants in hotels establishments will depend on its price and convenience.

Table 2. Perceived impact of guests and employees towards technological advancement in reservations

	Overall			Employees			Guests		
	Weighted Mean	Standard Deviation	Verbal Interpretation	Weighted Mean	Standard Deviation	Verbal Interpretation	Weighted Mean	Standard Deviation	Verbal Interpretation
Helps in checking the status of bookings and rooms	3.79	0.50	<i>Excellent</i>	3.76	0.43	<i>Excellent</i>	3.80	0.53	<i>Excellent</i>
Enables faster transaction	3.73	0.50	<i>Excellent</i>	3.66	0.48	<i>Excellent</i>	3.76	0.51	<i>Excellent</i>
Offers personalized reservation	3.60	0.63	<i>Excellent</i>	3.41	0.67	<i>Excellent</i>	3.67	0.60	<i>Excellent</i>
Reduces time in registration	3.66	0.57	<i>Excellent</i>	3.61	0.54	<i>Excellent</i>	3.68	0.58	<i>Excellent</i>
Enables guest information to be channelled in real-time, resulting in efficient service	3.62	0.66	<i>Excellent</i>	3.56	0.67	<i>Excellent</i>	3.64	0.66	<i>Excellent</i>
RESERVATION MEAN	3.68	0.45	<i>Excellent</i>	3.60	0.38	<i>Excellent</i>	3.71	0.47	<i>Excellent</i>

Based on the table above, variables 1st and 2nd shows a high rating from both the guests and the employees. This means that these two variables affect both the employees and the guests. The first variable that got the highest rating with an overall mean of 3.79 states that technological advancement helps in checking the status of bookings and rooms. According to Bhatnagar (2011), technological advancement has a big role in terms of hotel bookings. It helps the managers and employees to distribute rates to possible customers. On the other hand, on the guest's view, they can know real-time the status of their bookings. This implies that technological advancement in different hotel establishments can help in hotel bookings in the point of view of the employees and the guests.

The second variable that got a high rating from both the employees and the guests states that technological advancement enables faster transaction with an overall mean of 3.73. An article written by Sommers (2016) states that technology helps guests to transact with the establishment easier without the hassle of waiting in lines. Also, it was stated that it helps employees to serve customers conveniently and efficiently. Thus, this shows that technological advancements help both the guests and employees to have a smoother and faster transaction between each other.

On the other hand, the 3rd variable shows the lowest rating from the employees' perspective with the weighted mean of 3.41. The variable states that technological advancement offers

personalized reservation. In a study by Chen (n.d.), employees cannot just rely on technology itself in memorizing or keeping the guest's preference. A high staff turnover should also be a factor in offering personalized reservation or guest experience. This means that employees don't see a huge effect of technology on offering a personalized reservation to guests. A human interaction is preferred with a touch of technology in giving personalized reservation or guest experience.

Lastly, the 5th variable with an overall weighted mean of 3.62 which states that technological advancement enables guest information to be channeled in real-time, got a lower rating from both the perspective of the employees and the guests. According to an article by Hotel Technology News (2018), channeling information from guest to the employees real-time is a challenge for 3-star hotel because of communication barrier. This implies that information that needs to be addressed 'real-time' from guests are received by the employees a little late because of communication barriers and technological issues.

Table 3. Perceived impact of guests and employees towards technological advancement in front office

	Overall			Employees			Guests		
	Weighted Mean	Standard Deviation	Verbal Interpretation	Weighted Mean	Standard Deviation	Verbal Interpretation	Weighted Mean	Standard Deviation	Verbal Interpretation
Aids in recalling the preference of past guests for better service	3.65	0.57	Excellent	3.63	0.54	Excellent	3.65	0.59	Excellent
Helps the guests to get in touch with the hotel establishment	3.68	0.57	Excellent	3.68	0.47	Excellent	3.67	0.60	Excellent
Increases productivity among employees to serve multiple guests at the same time	3.59	0.60	Excellent	3.63	0.49	Excellent	3.57	0.64	Excellent
Supports in keeping and organizing data in the establishment	3.61	0.54	Excellent	3.61	0.54	Excellent	3.61	0.55	Excellent
Minimizes miscommunication between departments and guests	3.55	0.61	Excellent	3.49	0.64	Excellent	3.57	0.61	Excellent
FRONT OFFICE MEAN	3.62	0.47	Excellent	3.61	0.39	Excellent	3.62	0.50	Excellent

The table above shows how technological advancements affect the guests and employee in Front Office. The 2nd variable got a high rating from both the perspective of the guests and employees. With a 3.68 overall weighted mean these variable states that technological advancement helps the guests to get in touch with the hotel establishment. Bhatnagar (2011), states that through technology, employees of hotel establishments can reach-out to guests, or vice-versa, simultaneously and conveniently. Hence, this means that in contacting the guests or guests contacting the hotel establishment, technological advancement is a big factor.

The 3rd variable got a contrast rating from the perspective of the guests and the employees. A weighted mean of 3.63 from the employees and 3.57 from the guests. Based on the article of the Alice Platform (2021), it states that through technology, hotel staff can provide exceptional service to improve guest experience. This means that in the perspective of the employees,

technological advancements can increase their level of productivity, but it has a slight difference on the side of the guests.

The 5th variable got a lower rating from the guests and the employees, with an overall weighted mean of 3.55. According to Guard (2015), technology affects communication for some times it distorts the clarity and information of the message that is being conveyed. Hence, even though technology helps in faster communication and transmission, the guests and employees still can experience miscommunications.

Table 4. Perceived impact of guests and employees towards technological advancement in housekeeping

	Overall			Employees			Guests		
	Weighted Mean	Standard Deviation	Verbal Interpretation	Weighted Mean	Standard Deviation	Verbal Interpretation	Weighted Mean	Standard Deviation	Verbal Interpretation
Helps respond to guest's needs in a timely manner	3.63	0.55	Excellent	3.51	0.55	Excellent	3.68	0.55	Excellent
Builds smarter process in management and mobility	3.70	0.52	Excellent	3.61	0.63	Excellent	3.74	0.46	Excellent
Assists in accommodating guests efficiently	3.70	0.53	Excellent	3.61	0.49	Excellent	3.73	0.55	Excellent
Enables 1s to quickly alert hotel guests and maintenance personnel for repairs	3.65	0.61	Excellent	3.56	0.63	Excellent	3.69	0.60	Excellent
Monitors the cleanliness and status of rooms	3.68	0.58	Excellent	3.56	0.63	Excellent	3.72	0.55	Excellent
HOUSEKEEPING MEAN	3.67	0.45	Excellent	3.57	0.45	Excellent	3.71	0.45	Excellent

The table above shows how does technological advancement affect both the guests and employees in Housekeeping.

For the 1st variable, *"Helps respond to guest's needs in a timely manner"*, it got a lower rating from both the employees and the guests, with an overall weighted mean of 3.63. According to Next Tourism Generation Alliance (2019), even though technology help employees in serving the guests, it is not guaranteed that these would satisfy the expectations of the guests. This implies that not all the time technological advancement helps in responding to the needs of the customer that would meet their expectations. The 2nd and 3rd variable both got a high rating from both the guests and employees with an overall weighted mean of 3.70.

The 2nd variable states that technological advancement builds smarter process in management and mobility. According to Alice Platform (2021), technology allows guests and employees to stay connected for better service and management. Thus, for both the guests and employees, technological advancement builds a wider and broader scope of management.

The 3rd variable, technological advancement *"Assists in accommodating guests efficiently"* also got an excellent level of approval form guests and employees. A study by Cobanoglu, et. al, (2011), states that technology plays a huge role in giving guest satisfaction. Employees of the hotels utilize these technologies to help promote and enhance guest satisfaction. Hence, employees utilize the available technology in the establishment to accommodate and provide a good service to guests.

Guests with a mean of 3.72 from the guests and 3.56 from the employees. According to Beeston (2020), the use of technology is a factor in maintaining the cleanliness of the rooms of the hotel establishments. This means that with the help of the technology, guests appreciate the

cleanliness of the rooms. On the other hand, in the perspective of the employees, technology is just a small factor for human interaction and work is still the one needed in maintaining the cleanliness of this rooms.

Table 5. Perceived challenges of guests and employees towards technological advancement

	Overall			Employees			Guests		
	Weighted Mean	Standard Deviation	Verbal Interpretation	Weighted Mean	Standard Deviation	Verbal Interpretation	Weighted Mean	Standard Deviation	Verbal Interpretation
Technological advancements in hotel establishments breaches data privacy	2.91	0.97	Challenge	3.10	0.89	Challenge	2.83	1.00	Challenge
Hotel establishments cannot maintain the functionality of these technological advancements	2.69	0.95	Moderately Challenge	2.95	0.74	Challenge	2.58	1.01	Moderately Challenge
Some hotel establishments cannot keep up with the latest technological trend	3.03	0.83	Challenge	3.05	0.77	Challenge	3.02	0.86	Challenge
Technological advancement that used in hotel establishments may have altered or corrupted information	2.79	0.91	Moderately Challenge	2.80	0.87	Moderately Challenge	2.78	0.93	Moderately Challenge
Some technological advancement used in hotel establishments are not user-friendly	2.87	0.88	Challenge	3.00	0.77	Challenge	2.81	0.91	Challenge
Loss of significant amount of money or revenue during system outages	2.80	0.90	Moderately Challenge	2.93	0.91	Challenge	2.75	0.90	Moderately Challenge
CHALLENGES IN USING TECHNOLOGY IN HOTEL ESTABLISHMENTS MEAN	2.88	0.69	Challenge	2.98	0.68	Challenge	2.84	0.69	Challenge

The table above shows the overall mean of 2.88, employees mean of 2.98, and guests mean of 2.84. It also shows what are top and bottom challenges in the individual and overall perspective of the guests and the employees.

The 1st variable, 'Technological advancements in hotel establishment breaches data privacy', got a weighted mean of 3.10, which is the highest on the employee's perspective. According to Potter (2019), due to the continued advancement of technology some data that is transferred to the establishment are getting breach. This means that in the perspective on the employees, the data that is being collected by the establishment either from the guests or from the employees itself might leak or breach.

The 2nd variable with an overall weighted mean of 2.69 and guest's weighted mean of 2.58 got the lowest on the overall and guest's perspective. An article written by Soda (2020), it was stated that every hotel establishment whether 5-star or lower must be prepared not just in maintenance of the technologies available but the maintenance of the hotel to provide better guest service. Hence, maintenance of these technological advancements is not really a big of a challenge

to both the guests and employees.

With the weighted mean of 2.80, the 4th variable is the lowest challenge in the perspective of the employees. Article from the Hotel Technology News (2018), states that hotel establishments must always ensure the accuracy of every information especially the information that was given by the guests. This implies that employees are making sure that all the information that they receive from the guests must always be accurate and not altered to ensure the best service.

Lastly, the 7th variable, '*Many hotel staff might lose job because of these technological advancements*' got an overall weighted mean of 3.11 and guest's weighted mean of 3.13, highest in overall and guest's perspective. According to Sarmah (2021), the widespread of technology in hotel establishment won't totally affect the work of hoteliers. In terms of job loss, certain roles might fade but not totally. This implies that the use of technological advancements in hotels might affect the job of the hoteliers, but it would not completely replace human workforce.

Table 6. Comparison between the technological advancement and in the hotel sections and type of stakeholders using Mann Whitney

Variables	p-value	Verbal Interpretation
Reservation	.016	<i>Significant Difference</i>
Front Office	.452	<i>No Significant Difference</i>
Housekeeping	.009	<i>Significant Difference</i>
Technological Advancement in Rooms Division Department Overall	.029	<i>Significant Difference</i>
Challenges In Using Technology in Hotel Establishments	.297	<i>No Significant Difference</i>

Ho1: *There is no significant difference between the perception of guests and employees on the effect of technological advancement in hotel establishments in Metro Manila.*

As seen on Table 6, the p-value of how technological advancement affect the guests and employees in reservation and housekeeping are .016 and .009 respectively which states that there is a significant difference. On the other hand, on front office, the p-value is .452 meaning that there is no significant difference.

Overall, the p-value of how technological advancement affect the guests and employees is .029 states that there is significant difference.

Hence, the null hypothesis is rejected. According to Kazandzhieva & Ilieva (2017), technology in hotel establishment increases employee productivity and enhances workforce allowing them to provide better guest service. On the other hand, according to Oracle Hospitality, guests seek hotel establishments with innovative technology that can provide them service quickly and conveniently, such as keyless room access, automated check-in and check-out, and reservation activities. This means that technological advancements positively impact both the guests and employees, but they have different perception and analysis on how it affects them.

Ho2: *There is no significant difference between the perception of guests and employees on the challenges faced by the hotel establishment in maximizing the use of these technological advancement*

Table 7 shows that the p-value of the analysis of guests and employees on the challenges faced by the hotel establishments in maximizing these technological advancements is .297. This means that there is no significant difference between the analysis of the respondents.

Hence, the null hypothesis is accepted. A study conducted by Ko (2016) states that adapting technological innovation to the characteristics of hotel service poses issues and challenges for both hotel managers and personnel as well as guests. Barriers and obstacles may obstruct the successful use of technology in a hotel establishment. Customers' attitudes and expectations, as well as employees' willingness, ability are examples of such barriers. Furthermore, according

to Bilgihan (2017), other issues with it include the expense of innovation, owner opposition, reluctance to change, training issues, the speed of technical growth, and limited time and money.

CONCLUSIONS

The guests and employees of a 3-star hotel in Metro Manila share a similar perspective on the technological advancements that are being implemented and made available in their establishments. These technological advances have a positive impact on both guests and employees as they greatly improve their stay in the hotel. Although the survey identified some issues, they were mostly rated as moderate by both guests and staff, which suggests that they can be minimized or resolved.

Furthermore, there was a significant difference in the impact of technological advances on guests and employees. This highlights the need for the hospitality industry to embrace technological advances in order to provide guests with improved services and employees with the tools they need to work more efficiently.

However, it is important to note that this study has some limitations. It only covers guests and employees in a 3-star hotel, which may not be representative of all hotels in the area. Therefore, it is recommended to widen the scope of the study to include hotels with 4 and 5-star ratings to gain a more comprehensive understanding of the subject. Further studies could also examine how technological advances impact the hotel's bottom line and the overall guest experience.

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