Influence of the Smart Tourism Technologies (STT) on the tourists' experience in Cavite: COVID-19 pandemic context

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Abstract

The COVID-19 pandemic and the acceleration of technology in the tourism industry are both game-changers in the tourists' experience in the current time. This study aimed to determine the influences of Smart Tourism Technologies (STT) on the tourists' experience with Cavite tourist attractions amidst the COVID-19 pandemic. It examined the Smart Tourism Technologies the tourists frequently use and their experiences to create an action plan for a Smart tourist attraction using STT. The study used a mixed-method approach and the results were analyzed using Pearson correlation and t-test for the quantitative data and thematic analysis for the qualitative data. The results showed that the most used Smart Tourism Technologies are ubiquitous connection, mobile devices and applications, and the Internet of Things. Even during the COVID-19 pandemic, the tourists were satisfied with their experience in the Cavite tourist attractions. The analysis also indicated the relationship and influence of Smart tourism technologies on tourists' experience, thereby concluding that integrating Smart Tourism Technologies in tourist attractions could also elevate the tourists' experience and satisfaction. Thus, the researcher proposed an action plan for the transformation to Smart tourist attractions to provide a seamless service process using STT, thereby preserving the authentic touristic experience, transforming to a better industry, and mitigating the impacts of the health emergency.

Keywords: Smart Tourism Technologies (STT), tourists' experience, COVID-19 pandemic

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1. Introduction

There are two events that disrupted the entire tourism industry at the current time. The first one is the extensive impact of the COVID-19 pandemic, causing countries to close borders, heighten travel restrictions, resulting in an economic decline globally. In fact, the World Tourism Organization(2021) recorded a 73% drop in international tourism for 2020, accumulating a loss of $1.3 trillion of export revenues due to the health emergency. The second disruption is the acceleration of the usage of information and communications technology (ICT) in the tourism industry, transforming to the use of smart tourism technology in the new normal.

Consequently, the COVID-19 pandemic caused the world to reconsider how people live, work, think, and travel (Villacé-Molinero et al.,2021) because of its increased impact on the tourism industry. One of the changes it brought was how it heightened tourist awareness around cleanliness and safety, local travel, and sensitivity to crowd-magnet attractions (Sampson et al.,2020), forcing businesses to balance safety and profits while using technological innovation to adapt. Both disruptions must be considered in generating new experiences to adapt to the existing circumstances such as travel restrictions, lock downs, and decreasing tourist arrivals. Thus, the tourism industry must utilize all the available and applicable resources and technology to redesign and enhance the tourists' experience in the most ingenious way usable to the tourists and appropriate to the new normal. The solution must account for the tourists' changed behavior and reduce perceived travel risks while adhering to the minimum health and safety standards, paving the way to the tourism industry's recovery, sustainability, and the enhancement of the tourist experience. Expectations and performance can significantly influence experiences (Gelbman, 2021), where tourist satisfaction also plays an integral part. Satisfaction occurs when tourist expectations are met or exceeded by the actual or perceived performance (Sie et al.,2018; Blackwell et al.,2007), where tourism products, especially the core and facilitating products, must be constantly redesigned to fit the tourists' needs and preferences at present.

As a result, Smart Tourism Technologies (STT) appears to be the apparent resolution. Smart Tourism Technology is defined as all technological media that visitors employ during the entire stages of their decision-making and travel journey (Khan et al.,2017). Although the tourist experience is a core construct in smart tourism, previous studies focused only on business-centric STTs, thereby overlooking the concept (Neuhofer et al.,2018). Thus, this study aims to address this gap by determining the influence of smart tourism technologies from the tourists' perspective.

In smart tourism, technology is seen as an infrastructure rather than an individual information system (Gretzel et al.,2015) that tourists are already using in the whole travel phase. The prevalence of smart devices combined with social media, cloud computing, networking, artificial intelligence, QR codes, mobile applications, online payments, and the internet has become the norm in the new normal (Pai et al., 2020). More than ever, it allows many transactions to happen contactless, promoting, above and foremost, health and safety, efficiency, and tourist experience. The opportunities for these tools are endless. However, the tourists' perspective, as end-users of the smart tourism technology and a co-designer in their own tourist experience, plays a vital role in the success of its integration (Gretzel et al., 2015; Chung et al.,2015; Shen et al.,2020b).

At present, the Philippines is only at its starting point towards this journey by launching a smart application, "Travel Philippines," and conducting its first hybrid event entitled "Accelerating Digital Technologies for Sustainable and SMARTourism" (San Juan, 2021). While the country's smart tourism technologies differ significantly from those in other countries, it is clear that Filipinos have already been utilizing STTs while traveling (Nanca et al., 2018). Thus, this study could also chart the growth of smart tourism technologies and the

tourism industry's pivot toward recovery.

While the role of technology in tourism has affected the industry and its users, modifications to its application to the tourism industry specifically remain lacking. However, it also provides a number of opportunities for the study to provide pertinent and necessary information about its path to a technological revolution. The requirement to comprehend tourists' perspectives could result in the industry's recovery and transformation into a more user-centric and efficient entity. The emerging phenomena, along with the changed behavior and preferences of tourists, calls for the knowledge advancement on smart tourism technology in the Philippines. Despite this fact, there is only one research regarding the topic that has been published in the Philippine setting (Maestro et al.,2019) and none in regards to the COVID-19 pandemic context. This is where the current study aims to address the knowledge gap.

The study aimed to know the influence of smart tourism technologies on tourists' experience in the tourist attractions in Cavite during the COVID-19 crisis. Understanding its influence could provide greater potential to be able to maximize its usage. It could also provide significant data on necessary smart tourism technologies to establish a smart tourist attraction in Cavite using smart tourism technologies.

Objectives of the Study - The primary objective of this study is to determine the influence of Smart Tourism Technologies (STTs) on the overall tourist experience in various tourist attractions in Cavite amidst the COVID-19 pandemic. Specifically, the study aims to describe the demographic profile of tourists based on age, sex, educational attainment, employment status, and frequency of visits to tourist attractions in Cavite. It also seeks to assess how tourists use Smart Tourism Technologies when visiting attractions, particularly in terms of Internet of Things (IoT), mobile devices and applications, ubiquitous connection, artificial intelligence (AI), virtual reality (VR), and wearable technology. Furthermore, the study aims to explore tourists' experiences when visiting these attractions during the pandemic, and to determine whether there is a significant relationship between the use of Smart Tourism Technologies and the tourists' demographic profile, as well as between the use of these technologies and their overall tourist experience. Additionally, the study intends to identify the perceived advantages and disadvantages of utilizing Smart Tourism Technologies in tourist attractions. Lastly, it aims to propose an action plan to support the development of smart tourist attractions in Cavite, leveraging Smart Tourism Technologies to enhance the visitor experience and promote sustainable tourism growth in the region.

2. Methods

Research Design - The study employed the descriptive-correlational method of research and used both qualitative and quantitative approaches to describe the influence of smart tourism technologies on the tourists' experience on the tourist attractions in Cavite during the COVID-19 pandemic. The researcher specifically used the mixed method of research due to its central premise of the synergy use of quantitative and qualitative methodologies to have better understanding of research problems and complex phenomena than either approach alone (Creswell et al.,2017; Molina-Azorin, 2016). This type of research deals with the opinions, perceptions, and attitudes of a chosen population in which the study is explored. According to Calderon et al. (2018), descriptive research functions as a fact-finding exercise that results in a sufficient and correct interpretation of the data. This approach is best suitable for this research because it emphasizes what exists, such as contemporary circumstances, behaviors, events, and occurrences, and ensures that the findings will be grounded in the tourists' experiences wherein triangulation and complementarity could be applied. Data were obtained using the questionnaire and interview guide as the primary instruments. The study used the embedded design wherein the qualitative findings strengthened or expounded the quantitative results.

Research Locale - The locale of the study is Tagaytay City and Alfonso, Cavite. The two towns are located in the upland area of the Tourism Nodal Point in the province. The areas were chosen due to the greater number of tourist arrivals they attract compared to other towns in the province. They also have the most significant number of operating tourist attractions despite the COVID-19 pandemic.

Respondents of the Study and Sampling Technique - The participants for the quantitative approach were the tourists who visited operating tourist attractions in Alfonso and Tagaytay, Cavite, from March 2020 to September 2021. They must at least be 18 years old and above to participate in this study. Participants who contributed to the qualitative interview were tourists who visited the towns multiple times and stakeholders such as managers or employees of tourist attractions in the vicinity. The tourist attractions that contributed to the interview are Museo Orlina, Skyranch Tagaytay, Sonya's Garden, and Queen's Strawberry Farm. The mixed-method was utilized to ensure that the quality of findings is valid and congruent with either approach. A semi-structured online interview was conducted to get the qualitative data due to the surge in COVID-19 cases, IATF restriction, limited tourists visiting Cavite, and limited operating attractions. A simple random sampling was employed in the study to select the respondents for the quantitative data. The Raosoft sample size calculator was among the better-known ones. Given its ease of use, this calculator has been frequently applied in social science research (Amzat et al., 2017; Mazanai et al.,2012; Nakku et al., 2019), proving its undoubted usefulness in determining sample size.

The estimated tourist population size from March 2020 up to September 2021 was 60,000. The researchers used the Raosoft sample size calculator that resulted in the sample size of 300 respondents who were the tourists who visited operating tourist attractions in Alfonso and Tagaytay, Cavite and must have used any smart tourism technologies while traveling to the tourist attractions with 95% confidence level, 5% margin of error, and 50% response distribution. The researcher disseminated 300 survey questionnaires for the study, but then, only 205 were successfully answered and completed upon retrieval of the survey questionnaire. The 300 respondents with a 5% margin of error were the actual plan, but due to the pandemic, the researcher gathered only 204 survey questionnaires with a 6.81% or 7% margin of error. The changes from 5% to 7% margin of error have no significant impact on the overall results of the study.

The qualitative data was collected via one-on-one online interviews via the platforms, Zoom and Facebook Messenger, using purposive and convenience sampling techniques. The main purpose of the survey was to estimate with a significant decision the percentage of the population that had a specific attribute by collecting from a small portion of the total population (Fraenkel et al., 2018). It was conducted using an inductive approach wherein the researcher used the interview guide. When the sample data was completed, it was transcribed, arranged, and organized to text format systematically. The data was analyzed using content analysis for common patterns or themes.

Research Instrument - A self-made survey questionnaire and interview guide were used to gather the needed data. To guarantee the integrity of and quality of the data collected, the researcher ensured that the participants were aware of the criteria for the needed respondents. It was also followed by a brief discussion of the study, including what the participants could expect from the questionnaire and informed consent in the data collection. When they agreed, participants proceeded to answer the survey questionnaire, which was checked by the researcher for completion and subjected to statistical treatment. Specifically, the parts of the survey questionnaire are as follows:

The first part is the demographic profile of the respondents. The demographic questions provided context for the collected survey data, allowed the researcher to describe the participants better and analyze their responses. It was based on the study of Shen et al. (2020) regarding the significance of sex, age, employment status, and frequency of visits to smart technologies. The second part queries the smart tourism technologies used by the tourists in the tourist attractions in Cavite using a Likert scale in frequency. Smart Technologies were characterized in six (6) categories: a)Internet of Things; b)Mobile Devices and Applications; c)Ubiquitous Connectivity d)Artificial Intelligence; e)Wearable Technology; and f)Virtual Reality(VR). The data in the Smart Tourism Technologies were gathered from several sources (Shen et al., 2020a; Buonincontri et al.,2016; Buhalis et al.,2019; Serravalle et al., 2019; Khan et al.,2017; Neuhofer et al.,2015) and was collated by the researcher accordingly. The third part determined the tourists' experiences using a 5-point Likert scale of satisfaction to measure the variables.

There were two interview guides for the qualitative instrument for the tourists and managers/employees of tourist attractions. The qualitative data was collected via online interviews to evaluate how smart tourism technologies influenced the tourists' and employees' experience in the operation of the tourist attraction. The interview process started with an explanation of the process and topic as elaborated in the interview guide. The participants were also briefed on their rights as voluntary participants, interview recording, data privacy, and confidentiality. When they provided their consent, the formal interview proceeded. The interview questions began with the awareness of the subject, its influence on the participants, advantages and disadvantages, future plans, and recommendations for a smart tourist attraction. One-on-one in-depth interviews used the interview guide view guide were utilized. The survey questionnaire and interview guide were validated by three experts on the related topic. Pilot testing was also conducted to assure the reliability of the instrument.

Validation and Reliability - The content of the research instruments was validated to ensure that it measures what it is intended to measure. Validity refers to the degree to which the requirements of scientific research methods were adhered to during the process of producing study findings (Dudovskiy, 2018). To ensure the validity of the research instruments, there are three sets of expert validators. The first juror has a Ph.D. in Management and Public Administration with a BS in Hotel & Restaurant Management, a journal peer reviewer in the Asian Society of Teachers for Research (ASTR) journal, and a college dean and president in a university. His experience in the industry, academe, and as a researcher and peer reviewer for 17 years shows exemplary expertise in the research field. The second validator is a statistician with a master's degree with proficient experience in statistics and the academe, ensuring that the statement of the problems is answerable by the results of the instruments. The third validator is a senior tourism officer based in Los Angeles who is currently enrolled in a master's program in tourism management. Her experience in the tourism industry field as a senior tourism officer and frequent traveler provided her with sufficient knowledge and skills invalidating the instruments answerable and relatable by the participants.

Reliability refers to the consistency in measuring instruments (Grinnel et al.,1994). According to Morgan et al. (1998), Cronbach's alpha is the most used type of internal consistency reliability. Cronbach's alpha coefficient was calculated and posted a 0.97 score and inferred as excellent; thus, the reliability was considered relatively high. The coefficient alpha values equal to or above 0.70 are acceptable reliability indicators and are considered relatively high, and it is deemed to be internally consistent and reliable. To ensure the survey instrument's reliability, consistency, and validity, it underwent pilot testing after approval by validators before the data gathering. Cronbach's alpha coefficient generated a value of 0.92001745 as a pre-test with 30 respondents with 45 item questions. The reliability analysis determined that the scales had a high degree of internal consistency. To determine the internal consistency of the questionnaire, the researcher used the Cronbach's Alpha Reliability Coefficient for Likert type scales data analysis tool. A strong correlation implies a high degree of internal consistency; consequently, the assessed questionnaire is unquestionably trustworthy and construct valid, as evidenced by the following results.

Table 1

Reliability Statistics for Pilot Testing

| Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.920	.920	45

George and Mallery (2010) provided the following rules of thumb: "_>.9 – Excellent, _>.8 – Good, _>.7 – Acceptable, _>.6–Questionable, _>.5 – Poor, and _ < .5 – Unacceptable

Hence, this questionnaire unquestionably is reliable since the α is 0.920. The result of the reliability statistics was high, α=0.92001. Each item contributed to the questionnaire's reliability and construct validity. Reliability analysis was conducted on the perceived task values scale, which had 45 items completed by 30 respondents. Cronbach's alpha exhibited the questionnaire to reach acceptable reliability, α = 0. 920. Most items emerged to be worthy of retention, resulting in a decline in the alpha if deleted. It also noted that an alpha of .920 indicated that the researcher had Cronbach's alphas exceeded the test value of more than the acceptable value of

0.70 and was observed as a reasonable goal. Interview Method. To substantial the quantitative research findings, the interview method was utilized for gathering data in qualitative research. Indirect individual interviews with the respondents were also conducted.

Ethical Considerations - According to Maxwell (2013), ethics refers to the practice of safeguarding the welfare and rights of people who consent to engage in research. Tourists, respondents, and other participants' welfare relate to balancing the risks against benefits in providing answers to prevailing issues or gaining insights into an issue. Several ethical considerations were considered to ensure that the study was conducted in an appropriate manner (Babbie, 2012). To comply with ethical considerations, survey questionnaire respondents and interviewees were provided with informed consent before the conduct of the study. Respondents would have to choose "yes" in the Google form, indicating they willingly agreed to participate in the study to proceed to the formal questionnaire, and interviewees would have to give their verbal consent to be included in the study. The informed consent includes information that their participation is entirely voluntary without any pressure or coercion. However, all information relating to their identity will be kept confidential, including their anonymity and privacy. The data provided to the study will be kept accurate and non-biased. The consent also included the average duration of answering the questionnaire or the conduct of the interview, the name of the researcher, and email address. Providing their consent was also included acknowledging and agreeing to the collection and usage of their personal data for documentation, data analysis, and interpretation, which will be kept/stored by only the researcher for three (3) years as outlined in the Data Privacy Act of 2012. Once agreed, the research purpose and process will be explained to them.

Data Gathering Procedures
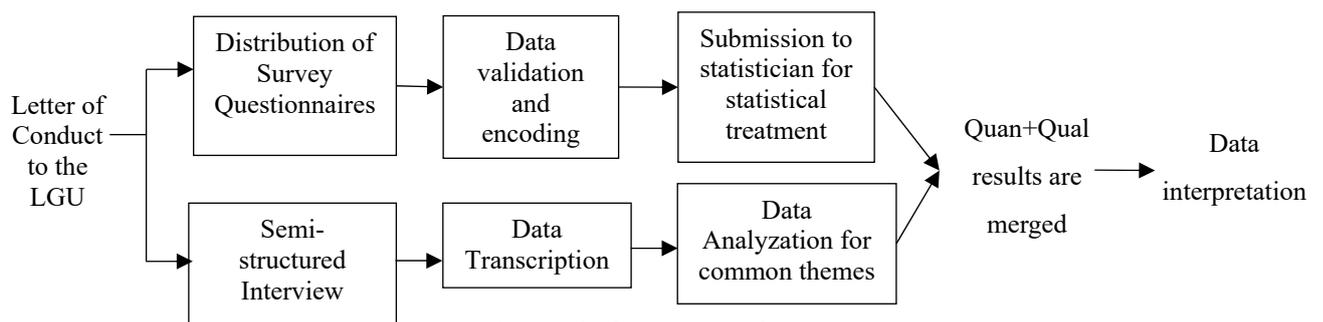
Fig. 1 Data Gathering Procedure

The researcher prepared a request letter to conduct a survey and reached out to the respondents, respectively. The data gathering of quantitative and qualitative information is concurrent wherein both methods were incorporated in the study, and the information was integrated to interpret both results to find congruent findings. The dominant data is quantitative, wherein qualitative augmented its interpretation by analyzing the common themes. The survey questionnaires were distributed to the respondents in an online format using Google Forms. To guarantee the integrity of and quality of the data collected, the researcher ensured that the participants were aware of the criteria for the needed respondents. The participants were also given appropriate information about the study and informed of legally required data protection information. Consent was acquired before proceeding to the actual survey questions. The results from the survey questionnaires were encoded, tallied, and validated by the researcher and submitted to the statistician for the statistical treatment of data.

For the qualitative data, the researcher conducted individual interviews via online platforms using the interview guide with the participants. Online platforms that were used were Facebook Messenger, Zoom, and e-mail. The interview started with a brief discussion of the study and the data privacy act. It was followed by acquiring the consent for the interview and recording. After interviewing at least 10 participants, tapped using purposive or convenience sampling, which consisted of tourists and employees, the researcher followed the procedures under thematic analysis to analyze the data. First, familiarization was conducted, which included audio transcription with clean verbatim of the interviews to develop an interview transcript for each common

question. The next step required coding, including highlighting relevant phrases and sentences to generate themes for the third step. This step included identifying the patterns to develop themes that were reviewed, defined, and named. During these processes, the researcher used Quirkos, a qualitative data analysis software, to enable efficient coding, themes generation, and analysis for each question. It involved repeated reading and analysis of the interview transcripts, highlighting relevant phrases and statements dragged to the existing theme or the generation of a new theme in the canvas view of the software. After each transcript for each interview question was coded and categorized into their relevant themes, a summary report was generated so that the re-narrated so that the researcher could review, analyze the most significant themes included in the study. The data was also analyzed and transcribed using only the alias of the participants to reduce or remove prejudice in assessing their answers based on their identity.

The results from the quantitative results and qualitative findings were merged appropriately for data interpretation.

Statistical Treatment of Data - The quantitative data collected were treated statistically using the respondent's answers and opinions. This study used a percentage and ranking for the socio-demographic profile of 205 respondents that contributed to the data-gathering process and a 5-point Likert scale method—the statistical treatment evaluated the data gathered from the survey questionnaires. To interpret the data pertaining to the demographics of the respondents, the smart tourism technologies, and the tourism experience, the one-variable table was used. After collecting the questionnaires, the researcher tabulated and encoded the responses of the tourists or respondents. Descriptive statistics was used to make a meaningful quantitative analysis of the data gathered. To determine the descriptive summary of the influence of smart tourism technology and the tourist experience, the mean and the standard deviation were utilized. Weighted mean was used to measure the general response of the survey samples, whether they agree to a given statement or not. Standard deviation was used to calculate the set of data and the distance away from the mean. The center is considered the most typical.

Likert Scale was utilized to know the most frequent used of Smart Tourism Technologies by the participants and was interpreted using the table below.

Value	Range	Interpretation
5	4.51 – 5.00	Always
4	3.51 – 4.50	Often
3	2.51 – 3.50	Sometimes
2	1.51 - 2.50	Rarely
1	1.00 - 1.50	Never

To find the degree of satisfaction in the tourists' experience, the 5-point Likert Scale was also used.

Value	Range	Interpretation
5	4.51 – 5.00	Very satisfied
4	3.51 – 4.50	Satisfied
3	2.51 – 3.50	Neutral
2	1.51 - 2.50	Dissatisfied
1	1.00 - 1.50	Very Dissatisfied

Likert Scale is known as attitude measurement; wherein subjects are asked to evaluate a set of attitude statements using scales with common categories. Pearson-Correlation was utilized to determine the significant relationship between the demographic profile and the Smart Tourism Technologies. It was also utilized to identify the significant relationship between the Smart Tourism Technologies used and tourists' experience.

The relationships between the variables were interpreted the following descriptions:

±1.0 = Perfect Positive Correlation/Perfect Negative Correlation

$\pm.80 \rightarrow \pm.99$ = Very High Positive Correlation/ Very High Negative Correlation

$\pm.60 \rightarrow \pm.79$ = High Positive Correlation/ High Negative Correlation

±.40→±.59 = Moderate Correlation/ Marked Relation

±.20→±.39 = Low Correlation / Substantial Relation

±.01→±.19 = Slight Correlation / Negligible Relation

To determine the significant relationship between the tourists' usage of each Smart Tourism Technologies and the variables under demographic profile and tourists' experience at 0.05 level of significance, the T-test was used. In this formula, t is the t-value, x1 and x2 are the means of the two groups being compared, s2 is the pooled standard error of the two groups, and n1 and n2 are the number of observations in each of the groups. A larger t-value shows that the difference between group means is greater than the pooled standard error, indicating a more significant difference between the groups. The Statistical Package for the Social Sciences (SPSS) was also utilized to interpret the data gathered.

3.   Results and discussion

As shown in Table 2, out of 205 respondents, 53.66 percent or 110 respondents, were in the range of 18-27 years old. According to World Youth Student and Educational Travel Confederation (2016), young people at this age are interested in traveling because of leisure, freedom, exploration, tremendous socio-economic opportunities, and social interaction. Furthermore, this is the age bracket of young adults or people who want to try new things and other cultures. In fact, youth travel has become one of the fastest-growing segments in global tourism, representing 23% of the total population of international travelers.

Table 2
Profile of the Respondents

Variable	Frequency	Percentage
Age		
18-27 years old	110	53.66
28-37 years old	43	20.98
38-47 years old	33	16.10
48-57 years old	15	7.32
58 years and above	4	1.95
TOTAL	**205**	**100**
Gender		
Male	86	41.95
Female	119	58.05
TOTAL	205	100
Employment Status		
Employed	99	48.29
Retired	6	2.93
Student	71	64.63
Self-Employed	23	11.22
Unemployed	12	5.85
TOTAL	205	100
Educational Attainment		
Postgraduate Level	85	41.46
College Level	97	47.32
Vocational/Diploma	7	3.41
High school Diploma	16	7.80
Elementary Diploma	0	0
TOTAL	205	100
Frequency of Visit to Tourist Attractions		
Once	66	32.20
Twice	55	26.83
3-4 times	44	21.46
More than 5 times	40	19.51
TOTAL	205	100

As to gender, female tourists dominated the attractions amidst the COVID-19 pandemic in Cavite with 58.05 percent or 119 respondents compared to 41.95 percent or 86 male respondents. Shrikant (2019), Marcus (2016), and Ferries, (2021) said that females have traveled exponentially during the past years. Ferries (2021) added that even if the female travel with a partner or a group, 80 percent of travel decisions are made by women. As to

employment status, 48.29 percent or 99 respondents were employed. This result is concurrent with the recent survey conducted by the Department of Tourism (2020). Furthermore, this finding revealed that most of the respondents felt relaxed while at the tourist attractions, especially after work, to ease stress and spend their extra time for recreation. It also implied their financial ability and desire to travel during their rest days. For the frequency of visits, 32.30 percent or 66 respondents visited the tourist attractions at least once during the COVID-19. As revealed by Salvador (2017), Cavite's strategic location made it a popular destination for a quick vacation. It also implies that tourist attractions in Cavite are considered necessary for public mental health and provide opportunities to ease the boredom and cabin fever intensified by the pandemic and isolation.

Based on Table 3, the respondents sometimes use the "QR Code (Quick Response)" over other Smart Tourism Technologies during the COVID-19 pandemic with a weighted mean of 3.45. Choi (2020) said that QR Codes help streamlines the necessary steps in the traveler's journey while enabling contactless capabilities. It implies that during the COVID-19 crisis, QR codes usage has surged for contactless payments, delivery, and contactless pickup. However, the respondents rarely use "NFC (Near Field Communication)" under location-based services with a weighted mean of 2.04. This finding implies that most of the respondents are not aware or familiar with the use of NFC despite its presence in various contactless technologies (Liu et al.,2020) implying the need to introduce this service more often to recognize this STT.

Table 3

Mean Scores on the Smart Tourism Technologies used by Tourists in the Tourist Attractions Amidst the COVID-19 Pandemic Based on Internet of Things

Indicators	MEAN	SD	INTERPRETATION
Location-Based Services			
GPS (Global Positioning System)	3.41	1.30	Sometimes
QR Code (Quick Response)	3.45	1.34	Sometimes
RFID (Radio-Frequency Identification)	2.86	1.38	Sometimes
NFC (Near-Field Communication)	2.04	1.46	Rarely
Smart Sensors			
Thermal Scanner	4.16	1.16	Often
Light Motion Sensors	3.16	1.31	Sometimes
Sensor Faucet	3.36	1.20	Sometimes
Automatic Flush	3.04	1.35	Sometimes
Smart devices and appliances			
Smart devices and appliances	4.26	0.94	Often
OVER-ALL COMPOSITE MEAN	3.31	1.27	Sometimes

Legend: Always= 4.51-5.00   Often= 3.51-4.50 Sometimes= 2.51-3.50   Rarely=1.51-2.50 Never=1.00-1.50

In terms of Smart Sensors, the respondents often use "Thermal Scanners" with the weighted mean of 4.16. This result implies the effective implementation of temperature checks under the minimum health & safety protocols in various establishments in compliance with the Republic Act (RA) No. 11469 or the Bayanihan to Heal as One Act to mitigate the COVID-19 virus in the new normal. The respondents also often use "Smart Devices and Appliances" with the weighted mean of 4.26. Smart devices combined with other technologies have become the norm in the new normal (Pai et al.,2020). It also implies the widespread integration of smart devices and appliances into everyday life.

Table 3 denotes that the majority of the indicators under the usage of the Internet of Things have an overall mean of 3.31 with an equivalent verbal interpretation of "Sometimes," which means that tourists already had an experience using these devices as supported by Neuhofer et al. (2018) on how the progressive development of the Internet of things could also deliver experience enhancement.

Table 4

Mean Scores on the Smart Tourism Technologies used by Tourists in the Tourist Attractions Amidst the COVID-19 Pandemic Based on Mobile Devices and Applications

Indicators	MEAN	SD	INTERPRETATION
Mobile Devices			
Smartphones	4.82	0.48	Always
Tablets	2.92	1.40	Sometimes

Social Media Applications			
Facebook	4.62	0.75	Always
Instagram	3.90	1.41	Often
Twitter	2.94	1.51	Sometimes
YouTube	4.11	1.00	Often
Tiktok	3.09	1.55	Sometimes
Travel-related Applications			
TripAdvisor	2.15	1.30	Rarely
Klook	3.47	1.50	Sometimes
Waze	3.78	1.29	Often
Google Applications	3.95	1.25	Often
Travel Philippines	2.01	1.45	Rarely
Payment Applications			
GCash	4.20	1.08	Often
Paymaya	2.75	1.47	Sometimes
Banking Applications	3.57	1.51	Often
OVER-ALL COMPOSITE MEAN	3.49	1.26	Sometimes

Legend: Always= 4.51-5.00 Often= 3.51-4.50 Sometimes= 2.51-3.50 Rarely=1.51-2.50 Never=1.00-1.50

Based on Table 4, the respondents always use "Smartphones" with the highest weighted mean of 4.82 under the indicator-mobile devices. This finding proves that Filipinos rely on smartphones in everyday transactions. This finding is further supported by Wang et al. (2011), wherein tourists have found smartphones useful in helping them visit more places, have a richer experience, and enjoy higher satisfaction with their trips overall. However, the respondents sometimes use "Tablets" with the lowest weighted mean of 2.92. In general, the participants prefer using smartphones over tablets because of their portability and versatile usability.

Under Social Media Applications, the respondents always use "Facebook", garnering the highest weighted mean of 4.62. This finding implies that Filipinos' friendly nature and craving for interaction have expanded to Facebook, supported by its 49 million users (Philippine Daily Inquirer, 2020). Under travel-related applications, the respondents often utilized "Google Applications" with the highest weighted mean of 3.95, probably due to the variety of products and services Google offers from navigational applications, data documentation, and search engines. The respondents also often use "Waze" with the weighted mean of 3.78. This implies that most of the respondents regarded these applications as the most helpful in terms of their informativeness and convenience. Under the payment applications, the respondents often utilize "Gcash" with the highest weighted mean of 4.20. It implies that Gcash has become a norm during the COVID-19 pandemic that it became the nation's largest mobile money services provider, with users surging to 150% in March 2020 (Endo, 2020). It denotes that most of the indicators under mobile devices and applications have an overall mean of 3.49 with an equivalent verbal interpretation of "Sometimes," which means that tourists had been using these mobile devices and applications in their typical travel transactions.

Table 5
Mean Scores on the Smart Tourism Technologies used by Tourists in the Tourist Attractions Amidst the COVID-19 Pandemic Based on Ubiquitous Connection

Indicators	MEAN	SD	INTERPRETATION
Ubiquitous Connection			
a. Wi-Fi	4.85	0.48	Always
b. Mobile Data	2.98	1.40	Sometimes
OVER-ALL COMPOSITE MEAN	3.92	0.94	Often

Legend: Always= 4.51-5.00 Often= 3.51-4.50 Sometimes= 2.51-3.50 Rarely=1.51-2.50 Never=1.00-1.50

Based on Table 5, the respondents always use "Wi-Fi" with the highest weighted mean of 4.85 under Ubiquitous Connection. However, the respondents sometimes use "Mobile Data" with the lowest weighted mean of 2.98. This finding implies that most of the respondents chose to connect via Wi-Fi instead of mobile data for faster connection while traveling, which was also supported by the survey conducted by Amadeus (2017) on Filipinos' preference of connection. Combined with smartphones and applications, the tourist would be able to fully maximize the use of smart tourism technologies, significantly improving the experience of the tourists due to its provision of omnipresent use of information, which gives way to one of the overall concepts of smart

tourism (Li et al., 2017).

Table 6

Mean Scores on the Smart Tourism Technologies used by Tourists in the Tourist Attractions Amidst the COVID-19 Pandemic Based on Artificial Intelligence

Indicators	MEAN	SD	INTERPRETATION
Artificial Intelligence			
A. Virtual Assistants			
Siri	2.02	1.39	Rarely
Alexa	1.44	0.84	Never
Google Assistant	2.85	1.43	Sometimes
B. Automated Chatbots			
Automated Chatbots	2.67	1.21	Sometimes
C. Search and Recommendation Algorithms			
Search and Recommendation Algorithms	2.72	1.20	Sometimes
OVER-ALL COMPOSITE MEAN	2.34	1.21	Rarely

Legend: Always= 4.51-5.00   Often= 3.51-4.50 Sometimes= 2.51-3.50   Rarely=1.51-2.50 Never=1.00-1.50

Based on Table 6, the respondents sometimes utilized Google Assistants with the highest weighted mean of 2.85 among the indicators under Artificial Intelligence. However, the respondents never use Alexa with the lowest weighted mean of 1.44. This finding implies that most of the participants have already encountered these artificial intelligence technologies but rarely used them despite their existence in various smart tourism technologies proving Nanca et al. (2018) on how artificial intelligence technologies are more business-centric than user-centric.

Table 7

Mean Scores on the Smart Tourism Technologies used by Tourists in the Tourist Attractions Amidst the COVID-19 Pandemic Based on Wearable Technology

Indicators	MEAN	SD	INTERPRETATION
Wearable Technology			
Smartwatch	2.92	1.56	Rarely
Bluetooth Headset	3.28	1.48	Sometimes
OVER-ALL COMPOSITE MEAN	3.1	1.52	Sometimes

Legend: Always= 4.51-5.00   Often= 3.51-4.50 Sometimes= 2.51-3.50   Rarely=1.51-2.50 Never=1.00-1.50

Based on Table 7, the respondents sometimes use "Bluetooth Headset" with the highest weighted mean of 3.28. This finding implies that most respondents are familiar with Bluetooth headsets and have been using them while traveling. In fact, Zeadally et al. (2019) supported these findings regarding how Bluetooth headsets will continue to exist in the foreseeable future.

Table 8

Mean Scores on the Smart Tourism Technologies used by Tourists in the Tourist Attractions Amidst the COVID-19 Pandemic Based on Virtual Reality

Indicators	MEAN	SD	INTERPRETATION
Virtual Reality			
Virtual Reality (VR)	2.45	1.37	Rarely
OVER-ALL COMPOSITE MEAN	2.45	1.37	Rarely

Legend: Always= 4.51-5.00   Often= 3.51-4.50 Sometimes= 2.51-3.50   Rarely=1.51-2.50 Never=1.00-1.50

On Table 8, respondents rarely use Virtual reality (VR) with the weighted mean of 2.45. This is the lowest mean among smart tourism technologies under study, implying that its progress in tourism in the Philippines is significantly slower than its growth in gaming (Barreiro, 2019) and education (Buenaobra et al., 2018).

Table 9

Mean Scores on the Tourists' Experience in the Tourist Attractions in Cavite Amidst the COVID-19 Pandemic

Indicators	Mean	SD	Interpret.
It was easy to find relevant information about the tourist attraction, such as restrictions, requirements, location, rates, and operating hours and days.	3.76	1.02	Satisfied
The information I gathered, such as protocols, restrictions, reviews, and feedback, are sufficient and have helped me decide to go to the tourist attraction.	3.89	1.03	Satisfied
The information I gathered before visiting made me excited to go to the destination.	3.88	1.05	Satisfied
It was easy to book a reservation or contact the tourist attraction for inquiries.	3.51	1.13	Satisfied

The tourist attraction implemented minimum health and safety protocols reducing perceived risk.	3.78	1.04	Satisfied
The facilities, amenities, and staff of the tourist attraction met my expectations.	3.79	0.94	Satisfied
The tourist attraction fulfilled my expectations.	3.84	0.95	Satisfied
I enjoyed my stay at the tourist attraction.	3.92	1.01	Satisfied
The rate or the entrance fee is reasonable and worth the experience.	3.77	0.99	Satisfied
I am satisfied by the memories I gathered through taking photos and videos, etc.	3.90	1.09	Satisfied
I plan to revisit the tourist attraction.	3.85	1.06	Satisfied
OVER-ALL COMPOSITE MEAN	**3.81**	**1.03**	**Satisfied**

Legend: Very Satisfied=4.51-5.00; Satisfied=3.51-4.50; Neutral=2.51-3.50; Dissatisfied=1.51-2.50; Very Dissatisfied=1.00-1.50

Based on Table 9, the respondents are satisfied with their stay at the tourist attractions in Cavite with a mean of 3.92. This finding implies that the performance of the tourist attractions in Cavite has met or exceeded the tourist expectations, thereby providing satisfaction as defined and supported by Sie et al. (2018). It infers how despite the restrictions and health protocols; the tourists were still satisfied with their experience. This finding implies that the performance of the tourist attractions in Cavite has met or exceeded the tourist expectations, thereby providing satisfaction, as defined and supported by Sie et al. (2018). According to Pai et al. (2020), Smart Tourism technologies considerably play a significant part in tourist satisfaction through a variety of factors such as setting expectation and seamless service process.

However, the respondents do not find it easy to book a reservation or contact the tourist attraction for inquiries with the lowest weighted mean of 3.51 although with an equivalent verbal interpretation of "Satisfied." This finding implies that the majority of the respondents are having a hard time booking reservations because of the country's current situation. It also infers the need to strengthen the online presence and technologies of the tourist attractions to provide better services to their tourists. This finding is supported by the survey entitled, "Insights on Filipino Travelers' Sentiments on the New Normal," conducted by the Department of Tourism et al. (2020), wherein it was found that travelers prefer online and digital channels for convenience and contact reduction. Generally, it signifies that most of the indicators have an overall mean of 3.81 with an equivalent verbal interpretation of "Satisfied," which means that tourists have a satisfying experience in the tourist attractions in Cavite amidst the COVID-19 pandemic. The overall positive tourist experience is further supported by travelers' willingness to travel domestically and closer to home and willingness to adhere to health and safety protocols (Department of Tourism et al., 2020).

Table 10
Results for the Correlation Utilizing Pearson Product-Moment Correlation Coefficient (PPMCC) on the Tourists' Usage of Smart Tourism Technologies and the Demographic Profile of the Respondents

	Smart Tourism Technologies	**Demographic Profile**
Smart Tourism Technologies		
Pearson Correlation	1	-0.03212
Sig. (2-tailed)		0.4025
N	205	205
Demographic Profile		
Pearson Correlation	-0.03212	1
Sig. (2-tailed)	0.4025	
N	205	205

Table 10 shows that the correlation coefficient (r) equals -0.03212, it is a negative correlation; the relationship between variables is weak as the nearer the value to zero, the weaker the relationship. The researcher concludes that there is no evidence between the tourists' usage of Smart Tourism Technologies and the demographic profile of the respondents. A non-significant result was obtained (r=0.4025 p>.05), indicating no statistical relationship between the two variables at the .05 level. The Pearson product-moment correlation coefficient results indicated that the variables among the demographic profile, none of the components significantly influenced the tourists' usage of Smart Tourism Technologies. This finding is in contrast with Neuhofer et al. (2018) since understanding the tourists' context is critical in delivering the best product or service. Since more evidence was needed to validate this contention, the results also underwent a T-test.

Table 11

Results for the Correlation Utilizing Pearson Product-Moment Correlation Coefficient (PPMCC) on the Smart Tourism Technologies and the Tourists' Experience in the Tourist Attractions in Cavite

	Smart Tourism Technologies	Tourist experience
Smart Tourism Technologies		
Pearson Correlation	1	0.4321
Sig. (2-tailed)		0.0000001
N	205	205
Tourist experience		
Pearson Correlation	0.4321	1
Sig. (2-tailed)	0.0000001	
N	205	205

Table 11 shows that the correlation coefficient (r) equals 0.4321, which is a positive correlation; however, the relationship between variables is moderately correlated as the results are somehow beyond the value to zero. Therefore, there is a relationship between the two variables. The researcher concluded that there is evidence between the Smart Tourism Technologies and Tourist Experience in the tourist attraction in Cavite. A significant result was obtained (r=0.0000001, p<.05), indicating a statistical relationship between the two variables at the .05 level. The Pearson product-moment correlation coefficient (PPMCC) results indicated that the variables among the tourist experience, approximately all the components, significantly influenced the SMART tourism technologies in Cavite. This finding is supported by several articles (Pai et al., 2020) on how the positive experience on the usage of smart tourism technologies has a link or a positive influence on travel experience based on the STT attributes investigated by the authors. It illustrates how STT could set the expectations of the tourists by providing relevant information fostering a seamless service process in the tourist attraction emphasized by the management's adherence to health protocols and commitment to satisfaction, thereby producing an elevated and satisfied tourist experience. This finding emphasized the theory of Neuhofer et al. (2018) on how the usage of smart tourism technologies strengthened the co-creation process in the tourist experience. Buhalis et al. (2019) argued that extensive implementation of technologies could also disrupt the essence of the tourist experience. To further validate this contention, the results also underwent a T-test.

Table 12

Result of T-test on Mean Difference between Mean Scores Ratings of Tourist Usage of Smart Tourism Technologies and Demographic Profile

Indicators Smart Tourism Technologies	Level of Significant		Interpret.	Computed t (205)	P value
	Statistically Significant (SS)	Not Statistically Significant (NS)			
Internet of Things	SS		Reject Ho	-27.0007	0.002
Mobile Devices & Applications	SS		Reject Ho	-2.62294	0.001
Ubiquitous Connection		NS	Reject Ha	0.181254	0.79147
Artificial Intelligence		NS	Reject Ha	0.971513	0.96288
Virtual Reality		NS	Reject Ha	0.457917	0.12454
Wearable Technology		NS	Reject Ha	0.667458	0.75789

Legend: NS – statistically non-significant with p > 0.05 – level of significance and SS – statistically significant with p < 0.05 – level of significance

Table 12 shows the summary of the descriptive statistics and analysis results which can be seen in the values computed P(T<=t) two-tail. Four indicators of Smart Tourism Technologies such as Ubiquitous connection, Artificial Intelligence, Virtual Reality, and Wearable Technology were all greater than the level of significance α equal to .05 and therefore the researcher rejects the alternative hypothesis (Ha), thus concluded that statistically non-significant difference between the Smart Tourism Technologies and the demographic profile hence, T-test was used to examine the difference in ratings. Moreover, the two indicators such as Internet of Things and Mobile Devices and Applications, were all less than the level of significance α equal to .05. Therefore, the researcher rejects the null hypothesis (Ho), thus concluding a statistically significant difference between the Smart Tourism Technologies and the demographic profile.

The result signifies that rejecting the null hypothesis of a study question shows that the hypothesis is true.

Consequently, a statistically significant hypothesis means there is sufficient assurance of a certain degree of confidence in the results. Thus, although there is no significant relationship between the usage of Smart Tourism Technologies and the demographic profile using Pearson -correlation. It was found that among the six STT under study, the Internet of Things and Mobile Devices and Applications have a significant relationship to the demographic profile. The statistical significance findings signify that the hypothesis has a basis and is worth studying further. The two STTs were among the study's frequently used Smart Tourism Technologies, implicating their immense usability. According to Wang et al. (2011), smart devices and applications were some of the easiest technologies to use during travel while the widespread use of the technologies under the Internet of Things could have made a significant impact between the two variables, resulting in its significance to the demographic profile of the respondents. In fact, frequent exposure to specific technologies could lead to their frequent usage by tourists (Huang et al., 2017).

Table 13 shows the summary of the descriptive statistics and analysis results which can be seen in the values computed $P(T<=t)$ two-tail. All the indicators of Smart Tourism Technologies such as Internet of Things, Mobile Devices and Applications Ubiquitous connection, Artificial Intelligence, Virtual Reality, and Wearable Technology were all less than the level of significance α equal to .05 and therefore the researcher rejects the null hypothesis (Ho), thus concluded that statistically significant difference between the Smart Tourism Technologies and the tourist experience. Hence, T-test was used to examine the difference in ratings. Moreover, it is concluded that there is statistically significant difference between the Smart Tourism Technologies and the tourist experience in the tourist attractions in Cavite.

Table 13

Significant Difference in the Ratings of Respondents on the Smart Tourism Technologies and the Tourists'
Experience in the Tourist Attractions in Cavite

Indicators Smart Tourism Technologies	Level of Significant		Interpret	Computed t (205)	*P* value
	Statistically Significant (SS)	Not Statistically Significant (NS)			
Internet of Things	SS		Reject Ho	2.306012	0.004
Mobile Devices & Applications	SS		Reject Ho	1.254631	0.002
Ubiquitous connection	SS		Reject Ho	3.541412	0.001
Artificial Intelligence	SS		Reject Ho	4.52732	0.0342
Virtual Reality	SS		Reject Ho	4.38710	0.0441
Wearable Technology	SS		Reject Ho	3.23335	0.04478

The result signifies that rejecting the null hypothesis of a study question shows that the hypothesis is true. Consequently, a statistically significant hypothesis means there is sufficient assurance of a certain degree of confidence in the results. The statistical significance findings signify that the hypothesis has a core and needs further study. Overall, all the Smart Tourism Technologies under study have a significant relationship to the tourist experience in Cavite tourist attractions, supported by the study of Pai et al. (2020) and Huang et al. (2017) on how the exploratory use of STT enriches tourist experience by enhancing information search, processing, and sharing. It also proves Neuhofer et al. (2018) theoretical framework on how the co-creation and usage of smart tourism technologies by tourists could improve a smart tourism experience.

Table 14

Themes with Descriptions

Themes	Description
Awareness of smart tourism technologies	The tourist is aware and familiar with smart tourism technologies.
I used Smart Tourism Technologies, but I did not know the correct term.	The tourist uses smart tourism technologies but is unaware of its correct term.
Accessible and Convenient	The smart tourism technologies provide easy and time-saving transactions.
Set expectations	It is the subjective idea of the facilities and services of one's tourist attractions based on the business's social media, photos, websites, and reviews.
Updated Information	It is real-time information about the tourist attraction, including operating hours, products and services, promotions, restrictions, and requirements posted by the business through smart tourism

	technologies such as social media, websites, and applications.
Contactless Technologies	Wireless technologies allow one to conduct business without physical touch. This is possible through smart sensors and chips embedded through devices that use NFC. Several examples include a thermal scanner, smart sensors, and automatic flush. It also includes online payments through QR codes and scanners.
Safety	It is the condition of being able to manage hazards to have an acceptable level of risk. This term is utilized by tourists when their perceived risk of getting the COVID-19 virus is low due to the health and safety protocols implemented by the tourist attractions.
Communication	Exchange of information through smart tourism technologies such as mobile devices, smartphones, messenger, e-mail, social media posts, and comments.
GPS	Global Positioning System is a global navigation satellite system providing location, velocity, and time synchronization. Most participants refer to GPS as Waze and Google Maps, which are specific applications considered GPS.
Ubiquitous connection	Also known as wireless internet connectivity. Examples of this connection are Wi-Fi and Mobile Data.
No disadvantage	There are no disadvantage/s in using smart tourism technologies.
Minimal Disadvantage	There is only a small percentage of disadvantage in using smart tourism technologies. The advantages outweigh the disadvantages.
Technology-dependent	An intense reliance on devices and technologies that one will not be able to travel without using them.
Social Media Platforms	They are interactive technologies mostly used for the creation and sharing of information in virtual communities. The most dominant social media in the Philippines are Youtube, Facebook, Instagram, Twitter, TikTok, and Pinterest.
Smart Tourism Technologies influenced my visit to tourist attractions	Smart Tourism Technologies has influenced the participant's visit to tourist attractions.
QR Code	A type of bar code that stores information and stands for Quick Response. It is usually used for contactless transactions such as online submission of health declaration forms, online payments, and data collection.
Exciting & Encouragement	These are the feelings of tourists when they feel inclined and enthusiastic in their travel because of smart tourism technologies.
Check Reviews	It means reading and browsing several reviews written by previous visitors in the prospective tourist attraction using social media or travel-related applications before deciding on the visit.
Choosing travel destinations	This is defined by how smart tourism technologies could influence tourists where, how, and when to visit a particular tourist destination.
Mobile devices & Applications	It is considered as a portable handheld computer and all applications that could be installed within.
Potential for Malfunction/Unavailability	There is a possibility for a smart tourism technology to be unavailable or malfunction during the transaction because of loss of power, connection, system error, or physical failure.
Inability to Travel Without Smart Tourism Technologies	The participants would not be able to travel without using smart tourism technologies.
It is possible to travel without using Smart Tourism Technologies but it will be hard.	The participants could travel without using smart tourism technologies with difficulty.
I will be using STT in my future travels	The participants will be using smart tourism technologies in their future travels.
Yes, we have smart tourism technologies embedded in our business.	The participants or the tourist attractions have smart tourism technologies embedded in their business.
Google Applications	It includes all the applications Google hosts on their servers, including Google Maps, Google Search, Google Drive, Google Travel, and Google Play.
Convenience	It is the term used when a transaction is accessible, easy, and time-saving for tourists.
Smart Tourism Technologies Enhanced the Tourists' Experience	Smart Tourism Technologies enhanced the tourists' experience in the tourist attractions.
Plan on Future Transformation to a Smart Tourist Attraction	The tourist attractions plan to transform into a smart tourist attraction using smart tourism technologies in the future.
One common system or application	There is one common system or application wherein anything the tourist needs to go to the tourist attraction is already there. It includes information needed before, during, and after the actual travel. Examples would be a navigational app, map locator, list of tourism establishments where they could directly transact, reviews, updated information on the attractions and restrictions.
Attraction should be proactive in technological innovation.	Attraction should be proactive in looking and applying the best technological innovations suited to their tourist attraction and market.
LGU Support	LGU must support tourist attractions within their jurisdiction in applying certain technologies in their establishment. Support may include provisions on permits and requirements, assistance on its implementation, and others.
Comprehensive Study	There must be a comprehensive study before embarking on a smart tourism transformation. Needs, requirements, capabilities, and markets must be considered before applying a technological solution to maximize the best smart tourism technologies to enhance the tourist experience and the business competitiveness.

Based on Table 15, the respondents are aware of STT and their application in travelling. Half of the participants is aware of smart tourism technologies, and the other half of participants uses them but they are unaware of the proper terminology.

Table 15
Awareness of Smart Tourism Technologies

Code	Significant Statements	Theme
Awareness of Smart Tourism Technologies	Tourist 2: Yes, even if I'm not techy. Tourist 4: Yes, because I am from the hospitality industry, my friends and I have always used smart technologies even before. Tourist 6: Yeah. I know some of the smart tourism technologies. *Employee 1: From my understanding, STT is from as basic as using smartphones, the internet, and social media in communicating and sharing information with guests to as high tech as using holographic displays in presentations or displays, in our case exhibits. However, it's just now that I learned the proper term for it.* Employee 2: Yes, I am aware	Aware of Smart Tourism Technologies
	Tourist 1: I'm familiar with the technology itself, but in regards to smart tourism, I haven't yet experienced that kind of application when it comes to tourism. *Tourist 3: Actually, I don't really know that maps, Waze, WIFI are called smart tourism technology.* *Tourist 5: Actually, the general term, smart tourism technologies, I'm not really familiar with it. But if you're talking about the technology itself, like the application, yes, I am aware of that.* *Employee 3: Well, actually, we have an idea regarding Smart tourism technologies, but we don't really know the right term for it. We use these technologies in our business, but we are not familiar with the correct word for it* *Employee 4: Yes, I'm using the technologies, but I'm not aware that the right term is called smart tourism technologies.*	I use Smart Tourism Technologies, but I didn't know the correct term.

Although Filipinos have been using these technologies (Nanca et al., 2018), there is a need to introduce the concept of Smart Tourism technologies. Despite the increasing popularity of the smart tourism concept in the literature, this finding emphasized that its impact on the field lacks acknowledgment (Neuhofer et al.,2018).

Table 16
Themes on the Advantages of Smart Tourism Technologies in Tourist Attractions in the Tourist and Business' Perspective

Code	Significant Statements	Theme
Advantages of Smart Tourism Technologies	*Tourist 3: It becomes easier to go to places. We usually use Waze even if we are also from Cavite because it makes the travel faster. It seems that information is more accessible because we have WIFI, data, 5g or 4G. If you're looking for tourist attractions or places where you can eat or stroll, it is easier because of mobile data. There are also applications that provide information about places to go in Cavite or one location.* *Tourist 4: This is based on my experience. It has many advantages. One example is the GPS using mobile data. Other examples are Waze and google maps, and it is easy to go to tourist sites. You won't get lost because it is very accessible since it is already on your mobile phone. All you need is to really go to the location. Next are restaurants that offer food deliveries or online restaurants. Those are very good examples of smart tourism technologies that we use.* *Tourist 5: First is the accessibility and convenience because it saves a lot of time, especially for the tourists. You can explore information about the destination anytime, anywhere in just one click of your device.* *Employee 2: First of all, [means of] communication is very important. As I've said earlier, if our manager is on leave, we can still contact them. Another is communication to our suppliers' using smartphones where we can order, and they can just deliver in our store. Very convenient.* *Employee 3: During pandemic, the two advantages that I noticed are that we can maximize the convenience and safety it provides, not only for our customers but also to our employees. It also provides convenience because the customers could access the technology anywhere, and some employees could also work from home.* *Employee 4: Through Smart Tourism Technologies, we were able to provide online platforms where tourists could book and pay in advance, reducing contact and waiting on site. Thus, it provides efficiency for both our customers and us.*	Accessible and Convenient
	Tourist 1: You get to be updated and set an expectation before you go there. The attraction will match the expectation that you set. You become more updated and more aware of relevant information such as their operating hours, rates, and others. *Tourist 2: I based on reviews. First, I check their website then Tripadvisor because you can see their photos not coming from the management. This way, you will be setting your expectations because sometimes, the reality is different when you go there.* *Tourist 5: Nowadays, establishments provide virtual tours for the tourists' perspective, so they know what to expect when they get there.*	Set expectations
	Tourist 1: You get to be updated and set an expectation before you go there. The attraction will match the expectation that you set. You become more updated and more aware of relevant information such as their operating hours, rates, and others. *Tourist 3: It seems that information is more accessible because we have WIFI, data, 5g or 4G. There are also apps that provide information about places to go in Cavite or one*	Updated Information

location. *Tourist 5: You can explore information about the destination anytime, anywhere, with just one click of your device.* *Employee 1: Since technology is widely used by everyone, why not take advantage of it and use it for spreading information about a tourist attraction or business.* *Employee 4: There are many advantages of having STT in our tourist attraction. For one, we could deliver updated information to our potential clients instantly through the use of our social media pages. Promotional offers could also be posted immediately.*	
Tourist 5: Lastly is the contactless transaction to avoid contracting the COVID-19 virus amidst the pandemic. *Tourist 6: I think one of these is contactless transactions. For example, when we went to a restaurant, they just let me scan their QR code to see their menu and rates even if we were not yet inside the establishment or had not talked to their staff. We are still outside then, and the employees are still inside, but we already know what we should eat and how much it costs. One of the advantages is the contactless transactions with the establishments that have those smart tourism technologies.*	Contactless Transactions
Employee 3: During pandemic, the two advantages that I noticed are that we can maximize the convenience and safety it provides, not only for our customers but also to our employees. Nowadays, the contactless transaction is very important for safety. *Employee 4: Through Smart Tourism Technologies, we were able to provide online platforms where tourists could book and pay in advance, reducing contact and waiting on site. Thus, it provides efficiency for both our customers and us.*	Safety
Employee 2: First of all, [means of] communication is very important. As I've said earlier, if our manager is on leave, we can still contact them. *Employee 3: We can still contact them using smart tourism technologies*	Communication
Tourist 2: I based on reviews. First, I check their website then Tripadvisor because you can see their photos not coming from the management *Tourist 3: There are also applications that provide information about places to go in Cavite or one location.* *Tourist 4: Next are restaurants that offer food deliveries or online restaurants.*	Travel-related Applications
Tourist 3: It becomes easier to go to places. We usually use Waze even if we are also from Cavite because it makes the travel faster. *Tourist 4: This is based on my experience. It has many advantages. One example is the GPS using mobile data. Other examples are Waze and google maps, and it is easy to go to tourist sites. You won't get lost because it is very accessible since it is already on your mobile phone. All you need is to really go to the location.*	GPS (Waze and Google Maps)
Tourist 3: It seems that information is more accessible because we have Wi-Fi, data, 5g or 4G. If you're looking for tourist attractions or places where you can eat or stroll, it is easier because of mobile data *Tourist 4: This is based on my experience. It has many advantages. One example is the GPS using mobile data.*	Ubiquitous connection (Wi-Fi and Mobile Data)

Based on Table 16, there are nine significant themes on the advantages of using Smart Tourism Technologies in Tourist Attractions. It shows how using Smart Tourism Technologies provided advantages such as helping travelers set expectations, get updated information, and make their travel accessible and convenient while maintaining safety through contactless transactions. According to Gelbman (2021), expectations, along with performance, can significantly influence experiences and could play a valuable role in tourist satisfaction. Smart tourism is also centered on providing real-time information (Femenia-Serra et al., 2018) and making travel accessible, convenient and contactless, both of which are recognized as attributes of Smart Tourism Technologies (No et al.,2015; Huang et al., 2017). Pai et al. (2020) believed that when STTs provide relevant, sufficient, and accurate information, travel becomes convenient and safe, ultimately proving satisfaction to the tourists. Sampson et al. (2020) claimed that the COVID-19 pandemic heightened tourist awareness and safety, and smart tourism technologies could help alleviate these concerns, supported by the following statement.

> *"During the pandemic, the two advantages that I noticed were we can maximize the convenience*
> *and safety it provides, not only for our customers but also to our employees."*

Employees also regarded communication as one of the benefits of utilizing Smart Tourism Technologies, where businesses could continue interacting with customers and other employees even from afar. According to Huang et al.(2017), using STTs could facilitate immediate actions, real-time feedback, and active communication, promoting excellent customer service and transparent communication. All of these have become possible through smart tourism technologies mentioned by the participants, particularly travel-related applications (Douglas et al.,2018), GPS (Salgado et al.,2021), and ubiquitous connections (Pai et al.,2020).

Based on Table 17, the tourists believe there are no disadvantages to using Smart Tourism Technologies,

thereby implying its immense usability from the tourist perspective. These findings indicate the vital role of integrating and leveraging Smart Tourism technologies for tourists (Jeong et al.,2019). The participants even claimed the following statements.

"I can't think of one. All I can see are advantages." (Tourist 1)

"The disadvantages are only for those who don't know how to use it or are not familiar with the technology." (Tourist 3)

From the business perspective, using smart tourism technologies in their business has only minimal disadvantages that outweigh them. The next theme is centered around the tourists becoming technology-dependent that could distract them from creating an authentic travel experience as proven by the following statement.

Table 17
Themes on the Disadvantages of Smart Tourism Technologies in Tourist Attractions

Code	Significant Statements	Theme
Disadvantages of Smart Tourism Technologies	*Tourist 2: I can't think of one. All I can see are advantages.* *Tourist 3: The disadvantages are only for those who don't know how to use it or are not familiar with the technology.* *Tourist 6: During this pandemic, I think, none because it really became a part or a necessity for travel means. During this pandemic, I think smart tourism technology is not really disadvantageous or not part of a negative aspect.*	No disadvantage
	Employee 1: Using STT has a lot of advantages and very minimal disadvantages *Employee 3: Although there are disadvantages, the advantages it provides for the business outweigh them.*	Minimal Disadvantage
	Tourist 4: For me, we are so focused on technology that we revolve around it, especially now. We use smart technologies for everything. Although it makes our life easier, we become so focused on it that sometimes we cannot enjoy the tourist attraction or destination we go to. *Tourist 5: It could be a distraction for authentic travel experience for the tourist. Tourists have become dependent on technology for their convenience that the sense of being adventurous or risktaker is becoming lost, unlike before. Based on my experience, I can travel using paper maps before, and I can ask questions around strangers. These days, we actually tend to rely only on technology, apps, Google Maps, and reviews. We are somehow losing the personal human experience, which is the main product of tourism.*	Technology-dependent
	Employee 1: Regarding the internet and social media, not everything in it are facts; there are fake news that can damage one's business. *Employee 4: Tourists could provide immediate negative feedback on our social media before we could even mitigate the issue.*	Social Media
	Employee 2: One of the disadvantages is if there is no electricity, we won't be able to use [smart tourism technologies] like WIFI. *Employee 4: The disadvantage in relying solely in Smart Tourism Technology, especially for reservations or payments, is its potential to malfunction, which causes frustration to the customers. One example, although it rarely happens, is when they're trying to pay using Gcash or other payment apps and the payment was unsuccessful, but it deducted the amount from their account. Since it is a 3rd party application, we have no control over the situation.*	Potential for Malfunction/ Unavailability

"We are somehow losing the personal human experience, which is the main product of tourism."

Neuhofer et al. (2015) recommended that these technologies must be used as a tool to strategically improve the human resource-led processes to enhance service and experience creation processes that will not substitute personal human experience. On the other hand, the real-time information on social media and smart tourism (Neuhofer et al.,2018) could also backfire as many of the advantages of social media, including immediate feedback, subjectivity, and lack of information regulation, are also potential liabilities (Henderson et al., 2017). Its unavailability or potential for the malfunction could also cripple the business system, which could hurt the business and tourist experience (Huang et al., 2017).

Based on Table 18, there are ten major themes identified in the thematic analysis of the influence of Smart Tourism Technologies on tourists' experience in the tourist attractions. It shows that all the interviewees agree that Smart Tourism Technologies has influenced their visit to the tourist attractions, which is also for the first time. This finding is further supported by the study of Shen et al. (2020b), specifically on the influence of smart technologies in the customer journey. The interviewees justified their statements by enumerating the specific

smart tourism technologies that heavily influenced their experience, which included GPS, travel-related applications, QR code, social media applications, and ubiquitous connection and relating how they use these Smart Tourism technologies to check reviews, choose travel destinations because it is accessible and convenient.

Table 18
Themes on the Influence of Smart Tourism Technologies in the Tourist Experience on Tourist Attractions in Cavite during the COVID-19 Pandemic

Code	Significant Statements	Themes
Influence of Smart Tourism Technologies	*Tourist 1: When it comes to smart tourism technology, it is one of the things that influence me.* *Tourist 2: Definitely.* *Tourist 3: Yes.* *Tourist 4: Yes,* *Tourist 6: Yeah.* *Tourist 5: Yes, indeed. It influences my visit to different tourist attractions in Cavite in different ways. Overall, it gives me comfortability, convenience, and accessibility for everything.*	Smart Tourism Technologies influenced my visit to tourist attractions
	Tourist 3: [Using] google maps and Waze is easier to go to tourist attractions because they give you information on how to go there and what route to take. *Tourist 4: The most helpful are the maps, Waze, and google to quickly go to places or tourist attractions in Cavite.* *Tourist 5: Aside from that, using Google Maps or Waze for accessibility of the destination without any hassle. Waze could determine if there is traffic or an ongoing construction and lead you to a better route.*	GPS and Waze
	Tourist 1: Booking applications usually recommend places to visit and things to do. *Tourist 5: One example is the travel apps. Depending on their reviews or feedbacks, it influences my decisions, especially if they have reviews.* *Tourist 5: There are also times that you are already at the destination and you feel hungry, and you could try to use your apps to order instead of [driving and looking] where to eat.*	Travel-related Applications
	Tourist 3: When we have that, it becomes more accessible and touchless whenever we use QR codes. *Tourist 5: For example, when you enter an establishment and have to fill out the health declaration form, I tend to use the QR code for my safety instead of writing my information on paper.*	QR Code
	Tourist 1: When it comes to smart tourism technology, it is one of the things that influence [me] especially social media and other applications. *Tourist 4: Yes, especially social media and websites such as Instagram and Facebook. There are a lot of tourist sites shown on social media, making us curious and excited to explore because they showcase their beauty.*	Social Media Applications
	Tourist 3: It also includes technology like Wi-Fi and thermal scanner, where you can feel safe because they can have to do contact tracing during the pandemic since we do not have those before. *Tourist 6: It influenced me in terms of it encourage me [to travel] because I have a gadget and good connection on the internet using the mobile data so I could search any information that I need as such as restrictions.*	Ubiquitous connection (Wi-Fi & Mobile Data)
	Tourist 6: It influenced me in terms of encouraging me [to travel] because I have a gadget and good connection on the internet using the mobile data so I could search any information that I need, such as restrictions. So, the smart tourism technologies help me be more encouraged to travel even though there is a COVID-19 pandemic. *Tourist 1: It becomes exciting to go to Tagaytay and Alfonso.* *Tourist 4: any tourist sites are shown on social media, making us curious and excited to explore because they showcase their beauty.*	Exciting & Encouragement
	Tourist 2: I check them if the reviews are good or not. *Tourist 1: One example is the travel apps. Depending on their reviews or feedbacks, it influences my decisions, especially if they have bad reviews.*	Check Reviews
	Tourist 3: When we have that, it becomes more accessible and touchless whenever we use QR codes. *Tourist 5: Overall, it gives me comfortability, convenience, and accessibility for everything.*	Accessible and Convenient
	Tourist 5: It influences my visit to different tourist attractions in Cavite in different ways. First, of course, in choosing my travel destinations. *Tourist 1: Overall, it helps me discover those places*	Choosing travel destinations

It made them feel excited and encouraged during and before they travel. One participant claimed specific applications such as the Global Positioning System or GPS made travel easier because of the information it provides along the way, which was supported by Salgado et al. (2021) as it allows users to take full advantage of the exploration of the attractions and information in real-time.

The specific smart tourism technologies and themes deemed influential by the participants are also strengthened by other academic studies, including travel-related applications (Douglas et al.,2018), QR codes (Khaddar et al.,2017; Pai et al.,2020), social media applications (Chung et al.,2015; Pai et al.,2020; Shen et al.,2020) and ubiquitous connections (Pai et al.,2020). Smart Tourism Technologies made travel accessible and convenient from the participants' perspective, which was also one of the attributes of online tourism information sources in the study of No et al. (2015). Before traveling, participants usually check reviews (Shen et al.,2020a) of the attractions, which becomes a factor in their decision making and travel planning (Huang et al.,2017).

> *"Depending on their reviews or feedbacks, it influences my decisions, especially if they have bad reviews."*

These findings are consistent in the studies of Huang et al. (2017) and Gretzel et al. (2016), wherein information on the website or pages of the business is a critical part of the tourists' decision-making that was discussed.

Table 19
Most Important Smart Tourism Technologies in Tourist' Experience

Code	Significant Statements	Theme
Most Important Smart Tourism Technologies	*Tourist 3: The maps, like Waze and google maps, because they provide the best routes we could take.* *Tourist 4: The most useful for me is the location-based [apps] like GPS, Waze, or Google Maps.* *Tourist 5: Next, I usually use Google Maps, especially if I am not familiar with the place. It also gives you the best route so you could reach [your destination] faster. It also saves a lot of time which you could allocate on your actual destination.*	GPS (Waze and Google Maps)
	Tourist 6: I used gadgets and devices to go to those places, especially now, when we had time to travel even though we have this pandemic. I found them necessary to bring. It influenced me in terms of encouraging me [to travel] because I have a gadget and good connection on the internet using the mobile data so I could search any information that I need, such as restrictions. *Tourist 1: The most important probably is the smart devices and applications. All travelers probably use smart devices in creating transactions, finding the location, and information about the particular business. Travelers like me want to make sure that all information and feedbacks are in the smart devices I am using.* *Tourist 6: Another is Gcash. It provided me accessibility in paying. I could just get their number, connect to the internet and verify if they received the payment without giving them physical money. This way, there is no contact between the guests and employees. Those are the two I could think of: Gcash and search engines that provide real-time information*	Mobile devices and Applications
	Tourist 2: The travel sites because of the tourists' point of view there. You can read their actual experience, which becomes a factor I become entice with the place. I need to read first a good experience, but not just one. I browse all of it. *Tourist 4: My third are travel-related applications because [they have] a lot of promos, and you can compare prices of hotels or restaurants. You may rely there based on your budget.* *Tourist 5: Two things. One is the travel apps. It depends on the destination, but when I go to Cavite, I usually use Tripadvisor and Booking.com or Agoda.com. I browse there to read reviews, the available facilities, and how good their services are.*	Travel-related Applications
	Tourist 3: The [mobile] data, of course. Everywhere you go, data is very important. *Tourist 6: The real-time information it provides is important. For example, I could search if there is any establishment available or open in Tagaytay using mobile data or Wi-Fi connection and websites or search engines. You can see real-time information that even if you are not actually there, you'll know where to go, there is name, location, operating hours, and even the products and services they offer.*	Ubiquitous connection
	Tourist 1: I think it is the facts or information and images that they need to input about their business. The most important probably are the smart devices and applications. All travelers probably use smart devices in creating transactions, finding the location, and information about the particular business. Travelers like me want to make sure that all information and feedbacks are in the smart devices I am using. *Tourist 6: The real-time information it provides is important. For example, I could search if there is any establishment available or open in Tagaytay using mobile data or Wi-Fi connection and websites or search engines. You can see real-time information that even if you're not actually there, you'll know where to go, there's name, location, operating hours, and even the products and services they offer. So, I think that is one.*	Updated Information

Based on Table 19, the participants believed that the most important smart tourism technologies are GPS, travel-related applications, ubiquitous connection, and mobile devices and applications. They were found the most significant smart tourism technologies, and the participants reiterated that the main reason is the updated and real-time information they could provide while traveling. According to Wang et al. (2011), tourists have found smartphones helpful in helping them visit more places, have a richer experience, and enjoy higher

satisfaction with their trips overall, supporting the following transcript.

> *"The most important probably is the smart devices and applications. All travelers probably use smart devices in creating transactions."*

All the significant themes must be combined with smartphones to maximize their use fully. Salgado et al. (2021), using GPS in mobile phones combined with ubiquitous connection (Pai et al., 2020) and travel-related applications to check reviews or promos (Douglas et al., 2018), significantly improve the experience of the tourists due to its provision on omnipresent use of information, which gives way to one of the over-all concepts of smart tourism (Li et al., 2017).

Table 20
Themes on Tourist Perception on Capability of Travelling Without Using Smart Tourism Technologies

Code	Significant Statements	Theme
Capability to Travel Without Smart Tourism Technologies	Tourist 1: No, probably. Tourist 2: No. Even if I am not techy, we always use Waze in looking for destinations. Tourist 3: For now, with the pandemic, and the QR code, Wi-Fi, and others, it will be hard, so no. Tourist 5: Nowadays, I need smart technology. I really rely on smart tourism technologies this pandemic because I want contactless [transactions], avoid face-to-face with people, and online payments. Tourist 6: If this pandemic end, I will still use [smart tourism technology] because it is already part of the chain.	Inability to Travel Without Smart Tourism Technologies
	Tourist 4: I think I can still travel, but I am already used to it so that it will be hard for me. Since I already experienced using them, like GPS, my life has become easier. Then if I won't use them, it is still possible, but it will be hard.	It is possible to travel without using Smart Tourism Technologies but it will be hard.

Based on Table 20, 83 percent of the participants would not be able to travel without using smart tourism technologies during the COVID-19 pandemic, while 17 percent of the participants claimed that "it is still possible, but it will be hard." According to Nanca et al. (2018), Filipinos typically use Smart Tourism Technologies when traveling, implicating that their consistent usage made them accustomed to it that removing it from their usual usage will be difficult for them.

On Table 21, all the participants plan to use smart tourism technologies on their next visit to a tourist attraction in Cavite. It shows a significant positive effect and it is concurrent with the majority of the Filipino respondents who will plan their future travel using digital means based on the survey report entitled, "Philippine Travel Survey: Insights on Filipino Travel Behavior Post-COVID 19" (Department of Tourism, 2020).

Table 21
Themes on Utilization of Smart Tourism Technologies on Future Travels

Code	Significant Statements	Theme
Utilization of Smart Tourism Technologies on Future Travels	*Tourist 1: Yeah, probably.* *Tourist 2: Definitely.* *Tourist 3: Yes.* *Tourist 4: Yes, I am actually planning to book a hotel using Klook and Tripadvisor.* *Tourist 5: Yes, absolutely.* *Tourist 6: Yeah*	I will be using STT in my future travels

The results of the thematic analysis for the interview with the tourist attraction employees are described as follows:

Table 22
Smart Tourism Technologies Embedded in Tourist Attractions

Code	Significant Statements	Theme
Smart Tourism Technologies Embedded in Tourist Attractions	*Employee 1: We use social media such as website, FB page, and Instagram for communication, announcements, and sharing information about the museum, artworks, and artists.* *Employee 2: Yes, actually, in our establishment we have a lot of smart technology.* *Employee 3: We use them in our business.* *Employee 4: Yes, we do.*	Yes, we have smart tourism technologies embedded in our business.

	Employee 1: QR codes are used for Health Declaration Form and payments. *Employee 3: We utilize also QR codes to our customers for contactless transactions.* *Employee 4: We also have thermal scanners and QR code for contact tracing at the entrance of our attraction.*	QR Codes
	Employee 2: We also have Wi-Fi provided for our staff and also to our customers and clients. *Employee 4: Around the area, we also have WIFI available to our customers, and we encourage them to tag us in their photos as well* *Employee 3: We have installed CCTV cameras in the vicinity and Wi-Fi is also available in the area*	Ubiquitous connection
	Employee 3: during this pandemic, the campaign for safety and contactless service became more intense. We utilize also QR codes to our customers for contactless transactions. And of course, just like what is being asked of our company, we also have thermal scanner and sensors in our restrooms to minimize contact between our customers, facilities, and employees. *Employee 4: We tried to install several contactless devices around the perimeter of our business in order to assure safety from COVID 19 to our customers while reminding them of the minimum health and safety standards. We also have thermal scanners and QR code for contact tracing at the entrance of our attraction.* *Employee 1: QR codes are used for Health Declaration Form and payments.*	Contactless Technologies
	Employee 3: We also have a Google map so the customers can search us through the use of Google. *Employee 1: Online google form is used in reservations.*	Google Applications

Based on Table 22, all the participating tourist attractions have Smart Tourism Technologies embedded in their business, implicating the readiness and willingness of the businesses under study to adapt to the smart tourism concept gradually. It also proved Jeong et al. (2019) study on how the integration and leverage of Smart Tourism Technologies optimize business revenue and visitor experience. The participants then specified the Smart Tourism Technologies in their business, where six (6) distinct STTs emerged as themes. Standard Smart Tourism Technologies utilized by the tourist attractions are QR Codes, Ubiquitous Connections, Social Media Applications, Contactless Technology, and Google Applications. The three themes (QR Codes, Ubiquitous Connections, Social Media Applications) that emerged also aligned in the tourist perspective as the technologies that influenced their visit while they see contactless technologies as one of the advantages in using Smart Tourism Technologies. These technologies have the potential to contribute to asset management and business efficiency improvement, and value co-creation (Sotiriadis, 2017).

Table 23
Most Significant Smart Tourism Technologies in Business Competitiveness

Code	Significant Statements	Theme
Most Significant Smart Tourism Technologies in Business Competitiveness	*Employee 1: social media is a big help and, I think, the cheapest way of marketing a business. It also maintains the museum's visibility online even though it is temporarily closed because of the community quarantine restrictions.* *Employee 3: I believe, just like any other business, the most useful is social media. It provided us a lot of convenience. It is easier for us to navigate and for our customers to use so we can communicate. Through the social media pages, we can maintain our link or connection to our customers even during pandemic.*	Social Media Applications
	Employee 1: Online forms used in Health Declarations and reservation forms are very helpful in collecting important details and information about the guests without direct contact with guests, which is useful in this time of pandemic. And it is paperless! *Employee 4: I think the most important are the contactless technologies that we have because not only we reduce the safety concerns of our customers but also improve our compliance to the health & safety protocols and the efficiency of our services.*	Contactless Technologies

Based on Table 23, the participants believe that the most significant smart tourism technologies in the business perspective are social media applications and contactless technology. The participants claimed that social media is also effective in marketing. In fact, 74% of marketers believe that social media are vitally important for their corporate and product strategy (Chung et al.,2015).

> *"Through the social media pages, we can maintain our link or connection to our customers even during pandemic."*

These findings are also concurrent with the tourists' perception of how smart tourism technologies influenced their experience. Another theme that emerged in the business perspective is contactless technologies which also emerged in the tourists' perspective as one of the significant advantages of using smart tourism technologies. Due to the COVID-19 pandemic, the most important consideration nowadays is health and safety

(Pappas et al.,2021), where contactless technologies could help reduce risk perception.

Table 24

Future Transformation to a Smart Tourist Attraction

Code	Significant Statements	Theme
Smart Tourist Attraction	*Employee 1: Definitely! We are thinking of putting big screens in the exhibit area to improve the display and storytelling. We are also exploring how to put content on social media that will fit people of all ages.* *Employee 2: Yes, of course. The owner really plans to expand or branch out. Once we branch out, the smart technologies that we would have would be better because communication is very important.* *Employee 3: Nowadays, yes. We have plans to transform it because our current situation or the new normal is not certain. I think [using] technology in everyday transactions will not disappear, especially in our business and our customers, because everyone is worried about the people they transact with. So, I think the best option for us, for all the businesses, most importantly in the tourism field, is to transform especially our transactions.* *Employee 4: Yes. Definitely. We always want to improve our competitiveness, and this includes being attuned to the current trends in the tourism industry, and I believe in the new normal, it is required to use smart technologies to be more efficient*	Plan on Future Transformation to a Smart Tourist Attraction

Based on Table 24, the participants plan to transform their business into a smart tourist attraction. It proves the resilience and adaptability of the tourist attractions and the commitment to competitiveness. Chung et al. (2015) suggested that tourists have been using and adopting smart tourism technologies. These require businesses' willingness to adapt rapidly as well (Neuhofer et al.,2018).

Table 25

The Recommendation in Establishing a Smart Tourist Attraction in Cavite

Code	Significant Statements	Theme
Recommendation in Establishing a Smart Tourist Attraction in Cavite	*Tourist 1: There must be updated information about the businesses depending on the current situation or quarantine status. Their pages must be updated accordingly and timely.* *Tourist 3: Maps should also be updated, especially with areas or locations that are open and close.* *Employee 1: Producing informative content, using QR codes for forms and payments, and video presentations can enhance the services that any establishments are providing.* *Employee 4: I think it should start with the easiest smart tourism technology to apply in the business, the social media pages, which must be updated at all times.*	Updated Information
	Tourist 1: There must be an application wherein you (attraction) get to update the tourists' experience. It will show transparency on what the tourist attraction or Cavite could really offer. *Tourist 2: They must have an Online Tourist Information Center wherein everything is already concentrated, not just hotel or Airbnb but also food, restaurants, and tour guides.* *Tourist 3: There should be a system that will be used by all smart tourist attractions in Cavite, just like with the Department of Health. I don't really know what they call it, but it is like a common app or QR code for contact tracing since they have different [apps].*	One common system or application
	Tourist 5: [My] recommendation as a whole, in order for Cavite to establish more smart tourist attractions, establishment or the attraction itself should be proactive to embrace and invest with the smart technologies. *Tourist 6: The management [of the tourist attraction] definitely has to strengthen or invest in providing equipment or consider it in their relevant process or policies. So, my recommendation is to strategize the management's policies, management's resources, additional resources, and procedures. Overall, know your target market's demands and then strategize on the management itself, policies, procedures, and also the resources because the client could have smart tourism devices and the capability to use them, but if the establishment does not have one, it will not matter.*	Attraction should be proactive in technological innovation.
	Tourist 4: First, I think I really need to commend the effort of the Cavite government to establish public Wi-Fi in public areas. That is a good thing because if we're going to use smart technologies, we would need access to Wi-Fi or [mobile] data. *Tourist 5: The LGUs should also support the different tourist attractions, either small or big businesses. They should have a harmonization process that all attractions need to embrace for the sake of convenience and accessibility of all the tourists that they want to invite to the province. Maybe in the future, Cavite could become the smart tourism capital of the Philippines.*	LGU Support
	Tourist 6: I think you have to understand the demands of the customers first. The customers now are anxious if they will go to certain places. They are anxious if the place is safe for them or secure. Based on my experience, the smart tourism technology could help them feel or create an idea that they are safe in an attraction.	Comprehensive study

> *Employee 3: I think we need experts to study comprehensively regarding Smart tourism technology. Although we are already utilizing them properly, there must be a proper study on how we could maximize its advantages and eventually transform the disadvantages to [advantages] in using smart tourism technology in our business.*

Based on Table 25, there are five themes that emerged for the thematic analysis of the recommendation in establishing a smart tourist attraction in Cavite. Updated information is an essential characteristic of smart tourism technologies for the participants, and businesses must maximize this tool. This is supported by the study of Pai et al. (2020) on how informativeness stimulates tourists' rational judgment about the destination and helps them make efficient decisions. Neuhofer et al. (2018) conceptualization of the smart tourism experience focused on the holistic perspective where all the technologies will be interconnected in one smart ecosystem that must have real-time synchronization to facilitate a seamless experience (Neuhofer et al.,2015), supporting the findings on the participants' recommendation.

Consistent technological innovations and solutions have been emerging in the last decades, and to stay competitive, businesses must be proactive in adopting them with the support of the local government for a more cohesive system. To support these statements, the participants exclaimed the following statement.

> *"[My] recommendation as a whole is that in order for Cavite to establish a smarter tourist attraction, the establishment or the attraction itself should be proactive to embrace and invest in smart technologies."*

> *"They should have a harmonization process that all attractions need to embrace for the sake of convenience and accessibility."*

Department of Tourism (2020) also recognized the need to embrace the trend toward digitization in the Philippines' tourism industry, starting with launching a cohesive application, various training to stakeholders through webinars, and digitizing their transactions. Nevertheless, the participants also recommended that a comprehensive study must be applied to maximize its potential fully.

Proposed Action Plan on Establishing a Smart Tourist Attraction

Proponent: Cavite Tourist Attractions

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Date: October 2021

This report's main purpose is to create an action plan to establish or transform into a smart tourist attraction using smart tourism technologies in Cavite during and after the COVID-19 pandemic based on the findings of the study entitled, "Influence of Smart Tourism Technologies (STT) on the Tourist Attractions in Cavite: COVID-19 Pandemic Context. The researcher used the mixed-method of research to provide comprehensive results and findings. A quantitative approach using survey questionnaires to tourists and a qualitative approach using individual interviews with tourists and tourist attractions' employees were conducted. Statistical analysis using mean frequency, and Pearson correlation were utilized for quantitative results, while thematic analysis for qualitative findings was utilized. The embedded design was used to combine both approaches, wherein the qualitative findings were also used to strengthen the quantitative results. Technologies have massive potential in elevating experience (Neuhofer et al.,2015), but they also have the potential to blur the boundary between technology and the tourist experience (Buhalis et al., 2019.) Thus, this plan focuses on providing recommendations centered on authentic human experience elevated through smart tourism technologies without exhausting its use.

Table 26

Action Plan in Establishing a Smart Tourist Attraction

Strategies	Actions/Plan of Activities	Persons Responsible	Success Indicators
Integration of a Seamless	a. Stable Public WIFI in the vicinity	Local Government Unit	Number of uptime and connections and user

			satisfaction
Ubiquitous Connection	b. Stable Public WIFI in the vicinity	Tourist Attractions Management	Number of uptime and connections and user satisfaction
	c. Strong Network Signal	Local Government Unit and Tourist Attractions Management	Number of uptime and connections and user satisfaction
Development, Utilization and Integration of Mobile Devices and Applications	2.1 Development of a user and mobile-friendly website	Local Government Unit and Tourist Attractions Management	Number of website traffic and conversion rate
	2.2 Development of Free Downloadable Application with a holistic system for the business and the tourists with services including: a. updated information on the products, services, restrictions, protocols, company information, location b. account creation, c. booking and reservation d. advanced payment e. advanced health declaration forms f. QR scanner *Tourists would be issued a unique QR that will grant them access to establishment automatically after thermal scan and QR scan if they are already fully paid. They may also pay on site using cash or online payments using the QR codes. The issued QR code will allow seamless transactions while ensuring organized data collection for the business.*	Tourist Attractions Management	Number of usages, downloads, average response time and user satisfaction
	2.3. Download and utilized the tourist attraction application in transacting with the management	Tourists	Number of usages, downloads, average response time and user satisfaction
	2.4. Integration of the Business in other platforms and intensifying its presence in the following: a. social media	Tourist Attractions Management	Number of likes, reactions, interactions, tags, posts and positive reviews
	b. online presence using online marketing tools		Number of organic traffic, SERP visibility and click through rate
	c. Travel-related Applications		Number of purchases
	d. Google Applications		Number of engagement and analytics
Integration of Internet of Things	3.1. Creation of a common system for Contact Tracing System integrated in the Tourist Attraction Application	Collaboration between Department of Tourism, Cavite Government, LGU and Tourist Attractions	Number of user satisfaction (Apdex) and data collection
	3.2. Integrating Contactless Technologies at the crowd points of the tourist attractions a. Thermal Scanner	Tourist Attractions Management	Average rate of efficiency rate and user satisfaction
	b. QR scanner		
	c. Smart sensors for including automatic sanitizers, sensor faucet, flush and lights		

The table shows the matrix for the action plan in establishing a smart tourist attraction based on the matrix used in the Tourism Guidebook for LGUs by the Department of Tourism. The action plan is divided into three strategies focused on the integration of the three most used smart tourism technologies, namely: Ubiquitous Connections, Mobile Devices and Applications, and the Internet of Things. Tourist attraction management could also choose which recommendation they would apply to their business. The first strategy is the Integration of a Seamless Ubiquitous Connection. Ubiquitous Connection has two smart tourism technologies: Wi-Fi and Mobile Data. Under the specific actions or plans of activities, both STT must be integrated into the vicinity implemented

by the local government unit and the tourist attraction management. The purpose of this strategy is to maximize the usage of smart tourism technologies installed by tourists and the attractions. Based on the results of the study, Wi-Fi is the most usable smart tourism technology among the ubiquitous connection. The mobile data signal, regardless of the network, must also be strong in the vicinity. Providing a holistic system of applications and smart solutions will not be usable and effective if there is no stable ubiquitous connection.

The second strategy is the development, utilization, and integration of mobile devices and applications. The first plan of action under this strategy is to create a user-and mobile-friendly website implemented separately by the local government and attractions. The local government must include the operating tourist attractions and tourism establishments within the area, complete with photos and information. On the other hand, the tourist attraction website must focus on providing information on its products and services. Websites have become an important asset for any organization to establish credibility and showcase one's brand while increasing leads (Kaplan, 2020), leading to income. In today's digital-savvy world, it has become the primary source of online information that Expedia Media Solutions found out that average consumers visit 38 sites before booking (Peterson, 2015). Another relevant strategy that must be launched along with the website is the development of a mobile application. It must be a free downloadable application that could provide a holistic system for the business and the tourists. Findings from the current study have significantly shown the importance of applications in the tourist perspective which was also supported by Trekksoft (2019) on how 90% of travelers now have to help them during their travel. This recommendation aims to suggest one application that will be used throughout their travel. The website and the application must provide the following services in the website and the application:

a) Updated Information including the products and service offerings complete with photos, videos, rates and reviews, products and services for different market segments, on-going promotions, marketing advertisements, attraction updates, food and beverage options in the attraction, LGU and business restrictions, health and safety protocols, social media pages and company information including exact location and contact numbers. One of the considerations, when tourists visit sites and applications, is to gather as much travel information as possible to make good decisions. Providing information about the tourism products and services on the website and application will benefit both customers and tourist attractions since it will help the business showcase its brand and provide customers with all the options available while setting their expectations. However, this also entails that the business must guarantee that all the information pages, website, and application will be updated regularly and concurrently.

b) Account Creation wherein they could create their own account and make advanced transactions without repeatedly inputting their information. Once their account is successfully created and verified, they would be issued a unique QR Code that will immensely help provide smart services while the tourist is in the actual tourist attraction. Once fully paid, the smart services include automatic entrance in the tourist attraction without answering health declaration forms or queuing at the cashier. They would just need to show the unique QR code provided to them to be scanned with a QR scanner at the entrance. This would ensure convenience to both parties since there will be no repeated filling in of information for the tourists as well as an organized information collection for the business. However, the business must ensure that the system and technologies required to accomplish this must be efficient and functional. Options to print the QR code that could be formed into a wristband are also recommended.

c) Booking and Reservation where tourists could make inquiries, make reservations for their preferred dates, submit advanced health declaration forms and choose payment options. Tourists would have the option of paying online or paying onsite using payment applications, especially Gcash, Paymaya, or other bank applications. They would still be issued their unique QR code where they could show the cashier to be scanned for their reservation or information in which they would have the option to pay in cash or any of the online payments available using QR codes. The tourists must be provided with the option of booking and inquiring without creating an account. However, they must also be provided an alternative to creating one even after reservations. It must be taken into

account that there are still clients who are apprehensive about providing personal information online and providing alternatives would ensure a reservation.

d) Advance Payment wherein tourists could pay prior to their arrival in the application or website using various payment channels such as Gcash, Paymaya, debit, credit card, or payment centers. This option aims to minimize contact with tourist attractions. However, based on the study of Nanca et al. (2018), although Filipinos prefer booking online, they prefer paying on site. Thus, paying on-site via cash and online channels must still be available.

e) Advanced Health Declaration Form or Contactless Tracing wherein tourists would have the option to answer prior to arriving at the tourist attraction. Once their unique QR code is scanned, the health declaration form and other relevant information will also be stored in the application for contact tracing monitoring, and data collecting of the management involved. This ensures the removal of the required process in the actual establishment but highlights the organized information collection. It will also create a seamless service for the tourists and management.

QR Scanner where tourists could use to scan QR codes in the tourist attraction. The tourist attraction will be using QR codes to collect various information such as payment, health declaration forms, Wifi connections, etcetera. Although there are free QR scanners downloadable via Playstore or Appstore, it would be better if the tourist attraction application had one to provide a holistic system to the tourists. This would ensure convenience to consumers wherein they will not need to download another application to scan QR codes.

The next strategy includes the download, installation, and utilization of the mobile application by the tourist to enable them to enjoy the seamless products and services it offers. Tourist attraction management could also offer incentives such as promos or lower entrance fees to encourage the patronization of the application. The next strategy is the integration of the business in other platforms and intensifying its presence in the following:

Intensify social media presence by regularly posting information, photos, and videos, providing a feedback platform for previous tourists to give reviews, and engaging users through posts and comments and quick inquiry responses. Based on quantitative findings, Facebook is the most used social media application by the respondents. Thus, creating a Facebook page is recommended and an Instagram page where users could also geotag the tourist attractions whenever they post their content. There are approximately 78.5 million social media users in the Philippines that the business could potentially tap as their market. The social media pages, along with their website and application, must work together to provide online information and customer engagement. However, photos and information must be curated carefully to avoid negative feedback, especially when responding to customers.

Strengthen online presence by using and maximizing various online marketing tools such as SEO or Search Engine Optimization in your website and social media, having a proactive review strategy, and paying for search and social media advertisements. Tourists browsed social media, sites, and blogs to gather travel information, which entails shifting from traditional advertising to online marketing. d) Integrate the business products and services in travel-related applications such as Klook, Travel advisor, or Traveloka to launch the business on various platforms. c) Aggregate the business information by utilizing various Google applications, such as creating Google My Business Profile, wherein it could be another business platform for your tourist attraction for free, Google Maps so tourists could find the location easily. Google applications are one of the significant applications in the current study. Establishing a profile in Google will also give the business another platform to showcase its products and services and its other tools.

To integrate the last smart tourism technology, the Internet of Things, a common system for contact tracing system must be created to integrate into the Tourist Attraction Application. The effective implementation of this system will enable a unified exchange of data from all attractions in Cavite. It will also ensure effective contact tracing and data aggregation to the businesses. The last activity is to integrate contactless technologies,

especially at the crowd points of the tourist attraction. Thermal scanners must be available at all the entrance points, along with QR Scanner for temperature check, contact tracing, and health declaration forms. A separate lane may be included for tourists who already have a reservation with their unique QR code and have paid in advance so that they may enter immediately after their thermal scan. According to the report conducted by the Department of Tourism (2020), health and safety are the top primary concerns of travelers, and addressing the risks through contactless technologies would be vital to encourage visitors. Contactless basic facilities must also be included in the vicinity. One requirement would be an automatic alcohol dispenser at the entrance and crowded areas of the tourist attractions. Basic facilities must be converted to sensors, such as automatic flush and sensor faucets in the restroom. If there are restaurants or establishments within the tourist attractions that would require additional health declaration forms and contact tracing, they must have a QR scanner to scan the QR code of the tourists. The menu in front of the store must be visible so tourists can easily decide their orders or a QR code for the menu to scan it using the scanner with the tourist attraction application. The reservation must also be available in the app. The tourists must also have the option of paying through cash, card, or their preferred online payment applications. The recommendations aim to provide a seamless form of service process using smart tourism technologies and enhance the tourists' experience without the exhaustive use of technologies. It intends to preserve the authentic touristic experience while accelerating the process of the services and protocols required during the travel. Thus, it provides potential tourists with the opportunity to enjoy the tourist attraction, eventually satisfying both parties.

4. Conclusions and recommendations

Smart tourism technologies have influenced the tourist experience in Cavite tourist attractions during the COVID-19 pandemic by providing excitement, encouragement, accessibility, and convenience while helping them choose travel destinations. Generally, the majority of the participants have already used smart tourism technologies during their travel to Cavite tourist attractions. Among the indicators, the most used Smart Tourism Technologies are the Ubiquitous Connection, Mobile Devices and Applications, and the Internet of Things. This finding is also supported by the qualitative data, implicating the need to utilize these top three smart tourism technologies together to create a seamless experience for the tourists in enhancing the tourist experience for ease while maintaining safety. The specific smart tourism technologies that garnered the highest mean and the verbal interpretation of "Always" are Wi-Fi, Smartphones, Facebook, and Smart Devices and Appliances. Based on the findings of the study, it was found that there is no significant relationship between the usage of Smart Tourism Technologies (STT) and the demographic profile of the respondents, therefore supporting HO. However, further examination showed that Internet of Things and Mobile Devices and Applications are statistically significant with the demographic profile, thus concluding a statistically significant difference between Smart Tourism Technologies and the demographic profile, proving the hypothesis true. On the other hand, there are findings that there is a significant relationship between the smart tourism technologies and the tourist experience, implicating that these two variables significantly affect each other, either positively or negatively, rejecting HO. Further examination per indicator also shows that all the smart tourism technologies under study are statistically significant with the tourist experience in Cavite tourist attractions, thus, rejecting the null hypothesis. Moreover, it is concluded that there is statistically significant difference between the Smart Tourism Technologies and the tourist experience in the tourist attractions in Cavite. The advantages of using smart tourism technologies in the tourist experience are setting expectations, providing updated information, communication, safety, convenience, and accessibility through contactless transactions, mobile devices and applications, travel-related applications, GPS, social media applications, and Ubiquitous Connections throughout their journey. On the other hand, the disadvantages include how technology-dependent the tourist could become and the potential for malfunction or unavailability of smart tourism technologies. Although the participants considered social media as one of the significant STT, many of its advantages could also become disadvantages. However, it was also found that the majority of the participants would not be able to travel without using smart tourism technologies and would use them in their future travel. Even during the pandemic and the ongoing restrictions, the tourists were still satisfied with their experience in the tourist attractions. It could be concluded that improving the integration of smart

tourism technologies in the tourist attraction in human-centered design could also significantly improve the tourist experience. By analyzing the usage, experience, and the relationship of the variables through the mixed method, this research was able to identify and understand the specific smart tourism technologies that were the most significant in the tourist perspective. It confirmed the conceptual model of Neuhofer et al. (2018) on smart tourism experience wherein through using smart tourism technologies, the tourist would be able to gain a smart tourism experience that is data-driven, real-time, context-aware, and co-created. Aside from its theoretical contribution to the smart tourism concept in the Philippines, its contribution to the smart tourism technologies centered as user-centric in the smart tourism concept as a whole will be invaluable, addressing the gap in the research area. The mixed-method approach utilized in the study also provided a holistic view of the problems and the probable solutions in mitigating the impacts of the COVID-19 pandemic in the tourist attraction industry in Cavite. The findings also have immense implications for the integration of STT in policy-making in the local government in Cavite and the business profitability and sustainability. While the study clearly illustrates the valuable contribution of smart tourism technologies in the tourists' travel, it also has limitations as with all research. Although the participants were chosen through rigorous criteria and the research instrument undergone strict validation and reliability, the study's conduct is still limited to online means due to the restrictions and safety issues during the COVID-19 pandemic. Another limitation of the study is its confinement to Filipino travelers and the operating tourist attractions in the research locale during the conduct of the study. Future studies could explore other towns in Cavite or expand to other tourist destinations. A comparative analysis could also be investigated between Cavite and other provinces as well with domestic and international tourists. Despite the limitations described, the study delivers a significant finding on smart tourism technologies to the tourist experience relevant in theory building, policy, and managerial implications. Implemented accordingly, it could deliver an innovative and smarter tourist experience, elevating the tourism industry towards a transformative and more sustainable tourism experience.

The study has contributed to determining the influence of smart tourism technologies on the tourist experience in Cavite tourist attractions during the COVID-19 pandemic. As the pandemic situation and restrictions in the country change and the technology advances, the following recommendations are made based on the outcomes of the study. An action plan in transitioning to a smart tourist attraction was created for the output of the study. It is a detailed plan with actions, activities, or strategies to achieve the specific goal of the smart tourist attraction transformation. The people responsible for the implementation and success indicators were also included to measure the performance outcomes of the specific actions. The persons responsible for each plan of activities include the Tourist Attractions' Management, Local Government Units specifically the department leading their tourism planning, Department of Tourism, Cavite Government and Tourists. The action plan was centered on the findings of the study in integrating the most used smart tourism technologies in creating a smart tourist attraction. This study is formulated according to the current pandemic situation in the Philippines, specifically in the locale in Cavite. Provinces and cities within the country have varying restrictions from General Community Quarantine (GCQ), Modified General Community Quarantine (MGCQ), Enhance Community Quarantine (ECQ), and Modified Enhance Community Quarantine (ECQ) with different alert levels, to date. All of these imposed different limitations on business operations, tourist and/or locals' movement, and requirements based on the COVID-19 cases, which must be considered in their technological integration. Thus, future studies on other cities and provinces are recommended, tailored to their current pandemic situation, quarantine classification, restrictions, and technological advancement, including arising considerations such as vaccines. A comprehensive study of the tourist attraction, target market, and the current situation before integrating smart tourism technologies is also recommended. Tourist attractions have many varieties and segments they cater to, so it would be best to analyze which specific smart tourism technologies would work in the existing tourist attraction, which would be easily applied by the existing market segment they cater to. It is also recommended to include emerging smart tourism technologies that were not included in the study on future researches. Developments in the technological and tourism field are continuous and abrupt, and it is imperative to take note of the emerging smart tourism technologies that could play a significant role in both industries. Future studies could also be done regarding the effectiveness of the implementation of health and safety

protocols and mandatory tests before entering the premises. Although technological advancement in the tourism industry and the COVID-19 pandemic situation changes rapidly, the researcher believed that this study would illuminate future research on the smart tourism concept, tourist experience, and how these two variables could help shape a better tourism industry towards its recovery and improvement.

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