

Mediating Effects of Satisfaction and Discomfort on Citizen Readiness and Continual Use of Smart Municipality Services in Ibaan, Batangas

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Abstract

Smart Municipality is a concept of sustainable urban development that aims to improve the quality of life of citizens, increase economic growth, and ensure efficient delivery of services and sustainable development. This study investigates the relationship between citizens' readiness and intention to use Smart Municipality Services (SMS) by using satisfaction and discomfort as mediators. The study also aims to understand the role of technology readiness as a personality trait in shaping user satisfaction, discomfort, and intention to continue using SMS. A mixed research method was used in this study. The qualitative research phase involved a series of interviews with smart municipality experts to gain insights on SMS and the enablers and inhibitors that would affect the adoption of the services. The quantitative research phase consisted of a survey of Ibaan citizens to test the hypotheses. The results of the study showed that there is a positive relationship between citizens' readiness and intention to use SMS. Satisfaction and discomfort were found to be mediators in the relationship between readiness and intention to use. Technology readiness was found to be a significant predictor of satisfaction and discomfort. The findings of this study suggest that the Municipality of Ibaan and its citizens are ready for the adaptation and implementation of SMS in the long-term. The study also provides insights on the role of technology readiness in shaping user satisfaction, discomfort, and intention to continue using SMS.

Keywords: *Smart Municipality, Technology Readiness, Satisfaction, Discomfort, Intention to Use*

1. Introduction

With everything that is happening globally, every country and city aims to be smart and sustainable, especially that it is included in the 2030 Agenda for Sustainable Development. Currently, the world is facing a rapid growth of industrialization that requires them to improve their life to be able to adapt with the environment (Rasure & Courage, 2022). This industrialization affects the economy, working conditions, population growth, socioeconomic inequality, transportation congestion, water contamination, and related health problems. According to an article by ITU (2021), cities are home to more than half of the world's population which is about seven out of ten or 68% by 2050. Creating sustainable and smart communities can enhance the standard of living for residents and help in addressing urban challenges and problems that keep on happening around. With the help of Information and Communication Technology (ICT), it contributes to the United Nation Sustainable Development Goals (SDG).

There was a discussion about urban development strategies has emerged, that includes innovative solutions from technological firms (Niaros et al., 2017). This is the reason why it is important to have technological advancement because it is used to provide solutions to urban problems when they are developing their city or municipality (Aldegheishem, 2019). Also, the use of digital information extends to other areas such as human health, mobility, energy consumption, education, knowledge transfer, and governance (Desdemoustier et al., 2019). Thus, with the rise of information and communication technologies in urban planning activities, the concept of smart city, which is the successor of digital city and intelligent city, should be introduced (Wahab et al., 2020). Furthermore, in the beginning of the 21st century, concerns and challenges are starting to rise for rapid urbanization that leads to overpopulation, diminished resources, and climate change. Eventually, this leads to a slew of other global issues and concerns, such as excessive energy consumption, climate change, resource constraints, and air pollution. To meet the challenges, the concept of sustainable urban development emerged through the "Smart City" concept to significantly define urban planning (Venkatachalam et al., 2020).

To be able to prepare and be ready to face the challenges and problems that may occur, it is better to have a deeper understanding of the Smart Municipality. According to the article by Global Institute of technology, Smart Municipality is designed as a powerful tool to deal with the growing urbanization. It is a concept used to describe a strategy for integrating contemporary urban production factors into a single framework and emphasizing the significance of information and communication technologies (ICTs) to improve the competitive profile of a city. This ICT is a concept used by smart and sustainable cities to achieve their objective and act as a platform in ensuring that they meet the needs of the present and future generation of people with respect to their economic, social, cultural, and environmental aspects which would help to improve the quality of life.

People, especially the government, should take a step to do everything to avoid greater risks and challenges that they may face such as in their infrastructure, employment, education, and health care. They

should embrace it by using new technologies, improving living conditions, and protecting the environment to address the growing difficulties of urbanization. Governments and municipalities may create smarter, more sustainable cities for their residents by combining information and communication technologies (ICTs) with these other technologies. For the government to plan for a change in their system, they must involve their citizens to know their opinions and reactions about it. Their participation is important because they will be the key actors who will use and experience the smart municipality services in their area (Przebylowski et al., 2020).

To become a smart Municipality, a municipality should develop a service approach that is primarily focused on citizens, who are the primary beneficiaries of the goods and services that a Smart Municipality can provide that aims to improve the quality of their life with innovative and cutting-edge technologies to achieve sustainable development and economic growth. They should assess first if the people and their place is ready to become one by analyzing their Smart Municipality Pillars such as their competitiveness, quality of life, transport and ICT, participation, natural resources, human and social capital. They should find a way to address environmental, economic, and social challenges that they are facing and will continue to face in the future. It is one that employs advanced technologies to achieve the objectives it has set for itself which may include financial development, education, poverty eradication, social equality, enhanced citizen security, tourism, cultural education, intercultural physique, the environment, and quick citizen service in public services, but depending on the city's geographical location, socioeconomic conditions, the resources available to the city or municipality, and the perceptions of the respective local authorities (Georgiadis, et al., 2021). The changes should not be limited to the creation and implementation of the organization's core strategies of the "Smart city," the establishment of specialized organization structure, but also to increase the interest of the heads of Municipalities who are involved in these transformations (Kamolov & Kandalintseva, 2020).

Aside from being beneficial to solve the urbanization problems, according to Seagate, Smart municipality services could also help in improving local businesses and boost economies. As these kinds of services do not just improve municipality's efficiency but also create a valuable development tool for them to attract and retain new businesses. With the data collected by the smart municipality services, businesses would be able to better serve their customers because they have access to data technology to assess their business and improve their marketing plan which could improve customer engagement.

In this capstone study, the intention to use smart municipality services in the Municipality of Ibaan is assessed by determining its effects to the satisfaction and discomfort of the citizen's readiness. The municipality should create a service approach for its citizens, who will primarily benefit from the goods and services that a smart municipality can provide, if it wants to become smart. This Smart Municipality approach should undergo first to an assessment of its possible effects to the people of the community, would it be satisfying or bring discomfort to them and to the community. The satisfaction of the citizens would lead to the development of the municipality that is focused on them (Georgiadis, et al., 2021). With a higher satisfaction rate of the citizen could mean that they are ready on a smart municipality approach and the

municipality could implement it. But, on the other hand, if there were a high rate of discomfort or reluctance to the smart municipality approach, then it only means that the citizens are not yet ready.

The Municipality of Ibaan is a second-class municipality in the province of Batangas which has a vision to be a first-class municipality in 2028. But the thing is, they are having a problem with their annual income as the modernization and digitalization take place in the world, and they must adapt to these changes for the betterment of the community. As of the now, Ibaan has a centralized cctv monitoring for accidents, crime, and floods around the community, radio communications between barangay and Ibaan PNP, and semi-furnished website for the community. But as shown in Appendix I, the Community Needs Assessment of the municipality was discussed. It resulted in a change in system since there are five major issues such as lack of communication tools, no online accounts for the citizens, people are not well informed, no online payments, lack of digital equity and no systematic and computerized data.

The municipality must have an increase in their annual income and for them to address this issue, they must study the building of a smart municipality in their municipality, so that they will increase operational efficiency, share information with the public and improve the quality of government services and citizen welfare in their place. There should be an economic development opportunity, have more job opportunities, digital equity and decrease crimes which could help them achieve profitability and to achieve this, digitalization and modernization is needed.

Also, the study was conducted to know and assess the readiness of the Municipality of Ibaan to the adaptation of Smart Municipality Concept. Through this research, the municipality determined if they are ready to adapt to the smart municipality concept in their town which could affect, change, and influence the status of urban development and quality of life that they have. This benefits them in solving and being ready to face the current and future challenges and problems that may come because of rapid urbanization.

Smart municipality services have become increasingly important in the Municipality of Ibaan, Batangas, as they have the potential to improve the quality of life for its citizens. However, the success of their implementation and continuous use depends on several factors, including citizen readiness, satisfaction, and discomfort.

This study aims to investigate the mediating effects of satisfaction and discomfort on smart municipality service to continuously use in the Municipality of Ibaan, Batangas and their citizen's readiness. In this study, the following variables are being explored:

Citizen readiness: This variable refers to the degree to which residents in Ibaan, Batangas are prepared and motivated to use smart municipality services.

- a. Intention to Continuously use the Smart municipality service: This variable refers to the willingness of residents in Ibaan, Batangas to use continuously the smart municipality services.
- b. Satisfaction: This variable refers to the degree to which residents are satisfied with the smart municipality services they intend to use.
- c. Discomfort: This variable refers to the degree to which residents experience discomfort or negative emotions while using smart municipality services.

By examining the mediating effects of satisfaction and discomfort on the relationship between citizen readiness, the intention to continuously use the smart municipality service, and the success of their implementation, this study aims to provide insights into the factors that influence the adoption and continuous use of smart municipality services in the Municipality of Ibaan, Batangas.

Review of Related Literature

Knowing the customer's satisfaction with one product is important as it determines whether she likes your product or not. Having a high level of satisfaction will lead to a greater customer retention, a higher lifetime value, and a stronger brand reputation. On the other hand, having low customer satisfaction is also significant as it will determine the feedback on how the producer will improve his product, service, and overall customer experience.

Satisfaction of the Citizens with technology

Satisfaction mediates that there is a relationship between the drivers of intention to use the service technology and service quality (Shah et al., 2020). Having satisfaction will make the service continuous, and improving it could help identify, attract, and empower loyal customers. According to Agyapong et al. (2018), customer satisfaction is based on the perceived performance of a product or service in comparison to a consumer's expectations. In the concept of smart municipality services, the acceptance of the citizens on a new ICT will be a key determinant of its success on implementation rather than its vice versa that would cause trouble to its success. It is also helpful to show and to say the importance of using smart municipality services and ICT in everyday life for the citizens for them to be informed on the benefits and advantages of having smart municipality services. In the study of Bag and Lin (2018) about Smartphone technology, a new information technology can quickly change users' behavior and play an important role in meeting their needs. This technological innovation influenced researchers to comprehend the inner workings and potential outcomes of the random technological change that begins in the realm of technology and continues to the present day. Based on the unified theory of acceptance and use of technology (UTAUT) (Ayaz & Yanartaş, 2020), there are four key technology adoption variables which are performance expectancy, effort expectancy, social influence, and facilitating conditions, which ultimately affect the citizen satisfaction. The proposed technology should bring them a good service quality and benefits in usage to resolve their daily needs. With this, the people will realize the importance of the technology and will accept this change. The citizens are satisfied if the performance of the service meets their expectations. The customer is happy and satisfied when the service performance exceeds their expectations (Mohammed, 2022).

Discomfort of the Citizens with technology

Discomfort is a sense of being uncontrol in using technology and feeling overpowered by it (Ly et al., 2019). Discomfort indicates the user's difficulty in adopting technology due to incompetence, etc (Napitupulu et al., 2018). These definitions conclude that discomfort creates a negative relationship with usage of technology. If the citizen or the people will have discomfort, they will find that the technology is unpleasant, overwhelming, difficult to use, less useful, uncontrollable, too complicated, and less satisfactory (Blut & Wang, 2019). If they feel discomfort, they will try to avoid using it because they are not confident

enough to use it which could result in a lower quality perception. They will not be able to enjoy the benefits of using technology as they are more concerned about the risks in usage which tend to fail to meet their expectations. When a product or service fails to meet or exceed expectations, the customer is dissatisfied (Sarwenda,2020).

Technology Readiness Index

According to Setijadi et al. (2019), using the Technological readiness, it will determine the tendency of the people to use the new technology being proposed to achieve the goals in their place. This is an overall state of mind that results from mental images and inhibitors that collectively determine a person's tendency to use new technology. On the other hand, Technology Readiness Index (TRI) has 36 attributes that measure the construct and its components while TRI 2.0 is the updated version that has 16 attributes. This is a little different from the Technology Acceptance Model (TAM) because TRI measures the beliefs a person has in new technologies in general while TAM measures the acceptance of specific technologies.

The Technology Readiness (TR) is a multidimensional psychographic construct that allows consumers to be classified based on the positive and negative technological beliefs that underlie them (Blut & Wang, 2019). It has four initial dimensions which are innovativeness, optimism, insecurity, and discomfort that explain the usage of technology.

A. Conceptual Framework

This study adapted the research paper conducted by El Barachi et al. (2022) entitled “The relationship between citizen readiness and the intention to continuously use smart municipality services: Mediating effects of satisfaction and discomfort” as the conceptual framework and as shown in Figure 1. This capstone study is in line with their work as it focuses on determining the readiness and satisfaction of the citizens with Smart Municipality services. The only thing that differs is that this study is conducted in the Municipality of Ibaan, Batangas, Philippines.

This conceptual research model is used to investigate the connection between the readiness of the citizens and the intent for a long-term usage as mediated by satisfaction and discomfort for smart municipality services which was done in the study of El Barachi et al. (2022). This model is depicted in Figure 1, where hypotheses centered on mediated pathways will be tested, which are: Direct effects of satisfaction and discomfort of the citizens on continual usage of SCS; Mediating effects of satisfaction of the citizens on the relationship between enablers and continual usage of SCS; Mediating effects of discomfort of the citizens on the relationship between enablers and continual usage of SCS. The goal of this is to evaluate the readiness of the citizens and the intent to use more advanced versions of smart services according to their experience with current smart services.

Upon reviewing and reading different relevant literature on Smart Municipality Services, in this study, the application of the four initial dimensions of the Technology Readiness (innovativeness, optimism, insecurity, and discomfort) will be kept in order to capture some of SMS's distinguishing features. But the

three additional dimensions used by El Barachi et al. will also be used which are empowerment, mistrust, and legal considerations. These are the inhibitors and enablers that will be also used in this research study.

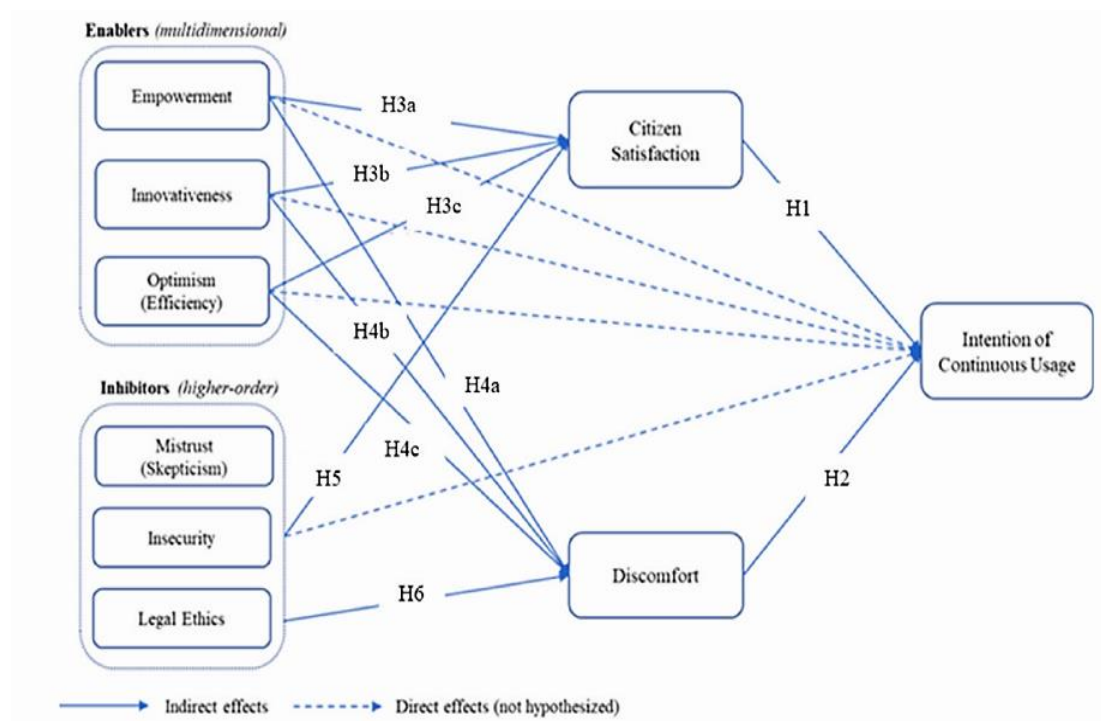


Figure 1. Conceptual Framework

Source: The relationship between citizen readiness and the intention to continuously use smart city services: Mediating effects of satisfaction and discomfort. (El Barachi, 2022)

In the study, upon using this conceptual framework model, they have empirical findings to every hypothesis that they did such as, 1. Discomfort has a negative influence on people's intentions to make use of smart city services, whereas satisfaction has a significant positive influence on those intentions.; 2. Discomfort, rather than being an independent variable of Technological Readiness, played the role of a moderating variable; 3. Enablers have a positive effect on people's intent to use Smart City Services, which is partly mediated by how satisfied they are with those services; 4. Some enablers don't have any effect on usage when discomfort is involved. This means that discomfort doesn't act as a link between the enablers and the citizens' continued use of SCS; 5. When mediated by satisfaction, there is no significant indirect effect of the inhibitors on continued use. This means that satisfaction does not play a role between the inhibitors and the citizens' plans to use SCS indefinitely; 6. When discomfort is a mediator, the higher-order construct of inhibitors has a significant direct and indirect effect on continual use.

B. Operational Framework

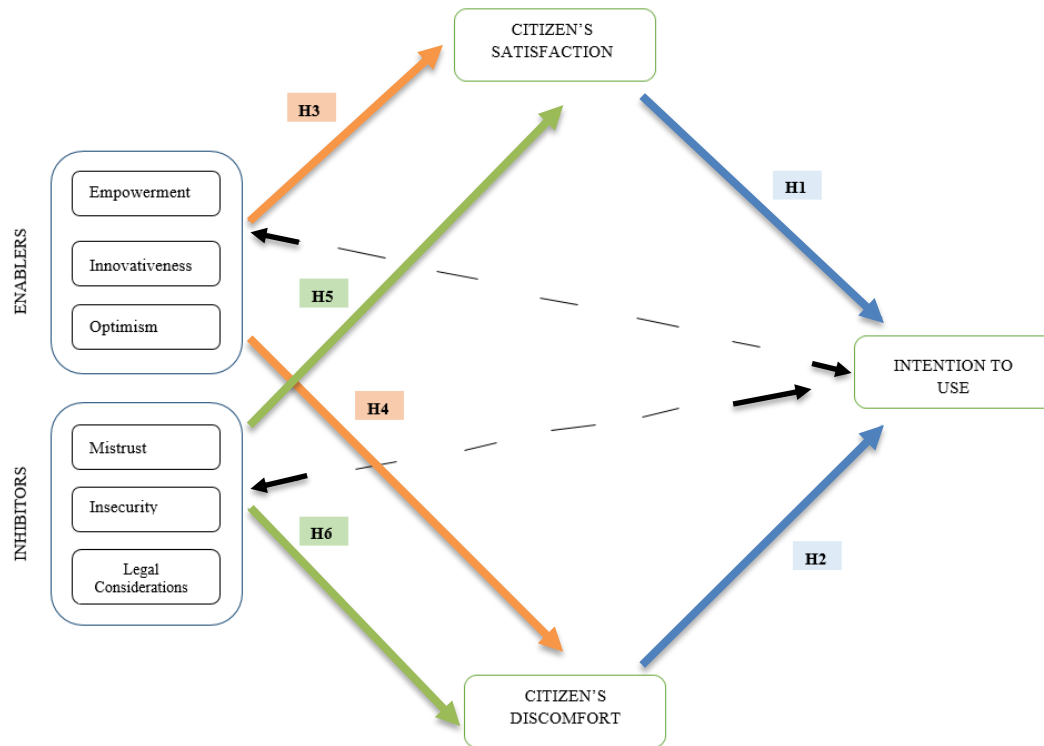


Figure 2. Operational Framework

Upon using this Operational Framework, the researcher would be able to test all the hypotheses proposed to be able to achieve the objectives of the study as anchored upon the conceptual framework of El Barachi et al. (2022). In this framework, the enablers and inhibitors would be tested and not individually just like in the conceptual framework.

C. Objectives of the Study

To address the issue and problem of the Municipality of Ibaan, this study aims to answer the following research objectives:

- 1.To determine the level of citizen readiness to continuously use the smart municipality services in the Municipality of Ibaan, Batangas.
- 2.To examine the relationship between citizen readiness and the intention to continuously use smart municipality services in the Municipality of Ibaan, Batangas.
- 3.To investigate the mediating effects of satisfaction and discomfort on the relationship between citizen readiness and intention to continuously use smart municipality services in the Municipality of Ibaan, Batangas.
- 4.To identify the factors that influence citizen readiness, satisfaction, discomfort, and intention to continuously use smart municipality services in the Municipality of Ibaan, Batangas.

5.To provide recommendations for improving the continuous use of smart municipality services in the Municipality of Ibaan, Batangas based on the findings of the study.

D. Hypotheses

The objectives mentioned above can be achieved by using these hypotheses to determine if:

1. Satisfaction has significant effects on the intention to use Smart municipality services while discomfort has a negative influence.
2. Discomfort has a significant effect on the intention to use SMS.
3. Enablers (Empowerment, innovativeness, optimism) have a significant effect on satisfaction.
4. Enablers (Empowerment, innovativeness, optimism) have a significant effect on discomfort.
5. Inhibitors (mistrust, insecurity, and legal considerations) have a significant effect on satisfaction.
6. Inhibitors (mistrust, insecurity, and legal considerations) have a significant effect on discomfort.
7. Satisfaction mediates the relationship between readiness (enablers) and intention to continuously use SMS.
8. Satisfaction mediates the relationship between readiness (inhibitors) and intention to continuously use SMS.
9. Discomfort mediates the relationship between readiness (enablers) and intention to continuously use SMS.
10. Discomfort mediates the relationship between readiness (inhibitors) and intention to continuously use SMS.
11. To propose a CAPSTONE Research study for the Municipality of Ibaan, Batangas, Philippines

Preparing and designing Smart Municipality Services (SMS) that are compatible with the requirements, preferences, and characteristics of the people who will be using them is important to have engagement and satisfaction, to reduce discomfort and to ensure the continuity of using these services and their sustainability. Also, this will help Ibaan to improve their quality of life, and to be prepared for the possible urban planning development challenges that may happen soon because of modernization.

II. METHODOLOGY

A. Research Design

The researcher used a mixture of qualitative research and quantitative research in gathering the data needed for the study to deal with the issues and problems, provide solutions that can be applied and to describe and observe the possible effect of the proposed system.

During the qualitative research phase, a series of interviews with smart municipality experts was done to get their thoughts on Smart Municipality Services and the factors that help or stop people from using them. These realizations are going to be used in the process of developing the research framework that the study is going to use to address the different characteristics of smart services. However, to put these hypotheses to the test and validate the structural model, we must move on to the quantitative research phase,

which consists of questionnaires which are administered to the residents of Ibaan. Integrating these two steps into the research process strengthens the quality of the data collected, the reliability of the resulting constructs and postulates, and the veracity of the associated measurements.

Study 1: Qualitative Research Phase

These questions are based on the Technology Readiness Index 2.0 and used in the qualitative research phase to conduct in-depth interviews with experts or people with firsthand experience or knowledge of Smart Municipality Services.

1. What, in your professional opinion, distinguishes "smart municipality" services from "regular" services?
2. Provide some examples of smart municipality services that are either already available or that are being planned in the Philippines and elsewhere around the world.
3. What factors would encourage the implementation and ongoing utilization of upcoming smart municipality services?
4. What are some of the barriers that might prevent people from adopting and consistently using future smart municipality services?

This research phase helped get relevant data, which helped find themes about what is beneficial and not on adoption. SMS will be used to get data for Figure 3.

	Sub-theme	Selected quote
Empowerment	The users' ability to control the collection of their usage history	... they collect information non-invasively without asking the users to enter the data ...
	The users' ability to control data collected about them	The involvement in the process means increased visibility in the process and increased confidence and trust as well
	The users' control over how their personal information is used	... has to ensure the privilege is only for those who have the right, or I give them the right to use this data
	Users' choice to be directed to another system	in terms of services that the citizen gets in trusting the third party, I think that is still an issue ...
Mistrust	Collaboration with users to co-create the service	... users are able to connect with each other in order to create their own service for their profit or for personal gain
	Trust will be built gradually when interacting with the service provider	Trust is a combination of different parameters: privacy, transparency, reputation, regulations, and it will take time.
	Image and reputation affect trust in the smart service provided	The perception and expectation of what smart city should be vary greatly amongst the user base; I mean, obviously, there are issues around trust.
	Personal information might not be treated with confidentiality	Many people perceive it as a breach of privacy as they are being monitored.
	SCS providers hide important information from users	... the matter of trust that will come up if any personal info is being used
	Terms and conditions associated with various SCS are hard to track	It is important to trust this type of government with this kind of terms and conditions, and I think, reasonably, over time, you've seen that the government has improved.
	Payment methods are not secure	Again, the cost of providing smart services to a certain extent comes with your having to give up your perceived sense of security.
Legal considerations	The lack of a regulatory framework may hinder adoption	SCS doesn't have enough regulations and rules to protect the users. smart services and the regulations that exist nowadays in UAE is not enough and gaps that may arise. But again, the cost of providing smart services to a certain extent comes with your having to give up your perceived sense of privacy or security.
	Weak authentication features, potentially leading to security breaches.	The SCS is not going to be the service that is provided directly to the customer who are the users of their service but will also be able to gather information from other providers that might lead to security breach ultimately, as I said earlier, sharing is a virtual quality; you have to share information. There is no point describing yourself as smart if all you know is one aspect of the information.
	Change of terms without consent	... transparency is very important when the terms and conditions of services change, in order to build trust with users.

Figure 3. Sample responses from the qualitative research phase

Study 2: Quantitative Research

The researcher used a questionnaire with a 5-point Likert scale (from "strongly disagree" = 1 to "strongly agree" = 5) to find out the thoughts and opinions of the people about their familiarity, level of awareness, knowledge, skills with smart technologies and attitude and perceptions towards these services, as well as their perceived barriers to continuously use it, about their level of satisfaction and discomfort with some aspects of Smart services and about their willingness to use these services in the future and their

likelihood of recommending it to others. This study chose to use a five-point scale because it is easier for people to understand, works best with a larger sample size, and gives a better spread of data. This survey was done online using Google Forms. When the survey is done, to test and get the results from all the statistical tests and analysis that needed, the researcher sought help to Ms. Ren Mores, who is a university teacher and a statistician at the same time.

Scale for measuring technological preparedness for Smart City services (El Barachi et al., 2022 & Al-Kaseasbeh et al., 2019) to be used is shown below but the actual questionnaire to be used can be seen in the appendix.

Table 1
Smart Services' Technology Readiness Scale

Coding	Scale Item
OPTIMISM	
OP1	Smart Services makes me more efficient in my work or education.
OP2	I rely on smart technology to keep up to date on topics I care about.
OP3	Smart services contribute to a better quality of life.
OP4	Smart service help people build stronger relationships.
INNOVATIVENESS	
IN1	People ask me for advice on how to use new smart technologies.
IN2	Most of the time, I'm one of the first people in my group of friends to buy new smart technology when it comes out.
IN3	Most of the time, I can figure out how to use new smart services on my own.
IN4	I follow changes in smart technology in the fields I'm interested in.
EMPOWERMENT	
EM1	I want to decide if smart services should keep track of how I use them.
EM2	I want to decide if I should give smart service providers my personal information.
EM3	I want to control how smart service providers use my data.
EM4	I want to be asked before smart services send me to another system or website.
INSECURITY	
INS1	People are too dependent on smart services to do things for them.
INS2	If a company can only be reached via the internet, I will not feel comfortable doing business with them.

INS3	Too many smart services are harmfully distracting.
INS4	Services in a smart reduce the quality of relationships by having less contact with people
LEGAL CONSIDERATIONS	
LE1	Smart services may be hampered by a lack of regulation.
LE2	Some smart services have authentication features that aren't very strong.
LE3	Smart services alter their terms and conditions without user consent.
MISTRUST	
MI1	I worry that smart service providers will not keep my personal information private.
MI2	Smart services keep users from seeing important information (e.g., not showing the seat number in cinema ticket booked online)
MI3	The terms and conditions of smart services change often and are hard to keep up with.
MI4	Smart payments services are unsafe.
DISCOMFORT	
DI1	I sometimes feel like a provider or high-tech product, or service is taking advantage of me when I get technical support.
DI2	Technical support lines aren't helpful because they don't explain things in terms I can understand.
DI3	I sometimes think that technology systems aren't made for regular people to use.
DI4	There is no such thing as a user guide or instruction manual for a high-tech product or service that is written in simple language.
DI5	It's hard for me to keep up with all the new smart services.
DI6	The accessibility of smart services is an issue because of factors such as the use of touch screens and small screens, and the lack of accessibility features for people with disabilities.
DI7	Smart services don't fit consumers' habits and practices.
DI8	Smart systems are constantly evolving, and this can have a significant impact on the user experience.
DI9	The costs of smart services are high/ expensive.
DI10	It is embarrassing when I have trouble with technology/ smart services while people are watching.
SATISFACTION	
SA1	I am satisfied with the technical quality of the Smart services.
SA2	I am satisfied with the information I receive from the smart services.

SA3	I am satisfied with the quality of the service offered by the smart services.
SA4	I am satisfied with the way in which smart service providers adjust to my needs.
SA5	Overall, I am satisfied with the services offered by the smart services.
INTENTION TO CONTINUOUSLY USE	
IC1	I would like to continue using smart services in the future.
IC2	I will continue using smart services than use any alternative means.
IC3	I will continue using the smart services even if I encounter some problems.
IC4	I will strongly recommend others to use the smart services in Ibaan.

As mentioned before, these scale questions are adapted from the study of El Barachi, et al and Al-Kaseasbeh et al. The first dimension is Optimism, where OP1 is associated with the ability to anticipate users' needs based on their past behavior. This is one of the most important things about SMS systems equipped with intelligent recommendation engines. The OP2 has to do with automatic decision making, which is a key component of the next generation of SMS that has to do with artificial intelligence and machine learning. OP3 is a term for an omni-channel capability that describes the ability to connect and integrate various channels so that customers have a consistent experience across all channels. OP4 refers to how simple and uncomplicated it is to communicate with different service providers using the many different channels available. Secondly, in the Innovativeness (IN), Insecurity (INS) and Discomfort (DI) dimensions, their item wordings were retained from TRI dimensions. Third, Empowerment dimension's items (EM) are about the concern of the user's ability to direct how their data is used and shared, as well as how they are redirected to different services. Fourth, concerns over personal privacy, a lack of openness, and a corresponding lack of trust in the system are the focus of the scale items that make up the Mistrust dimension (MI). Fifth, to address the lack of appropriate regulatory frameworks that control the adoption of emerging technologies and services in Legal Consideration, LE1, while the concerns about insufficient authentication and access control mechanisms, as well as the ability to alter terms and conditions without user consent, are the focus of LE2 and LE3, respectively. Lastly, the Satisfaction (SA) and the Intention to Continuously Use (IC) dimension's items were adapted from Al-Kaseasbeh et al. These two dimensions concerns about the satisfaction and the level of likeness on smart services and their willingness to use and recommend the smart services despite of any problems that may occur.

The expected result would be the readiness assessment of the Municipality of Ibaan to implement and adapt the Smart Municipality Services in their town. This result helps them to determine if they are ready

and if it is beneficial to them, especially if they are satisfied. Also, this is an advantage for preparing for the rapid urbanization that causes problems such as economically.

B. Locale of the Study

The study is conducted in the Municipality of Ibaan, which is a second class municipality in the province of Batangas, Philippines.

C. Respondents of the Study

In this study, the respondents are the residents of the Municipality of Ibaan, Batangas, who are of legal age. They could be the tax payers and business owners who usually go and use the government services of the local government. Based from the result of the *Gpower*, the study needs at least 160 respondents to ensure that the data collected are enough. The target respondents are at least 6 from every barangay (26 barangays in Ibaan) of the Municipality of Ibaan, 3 of which are 18 years old to 30 years old and another 3 are 31 years old and above. To ensure equality, the researcher asked women and men with any educational level to answer regardless of their civil status.

D. Sampling Design

To be able to find and obtain the data needed for the research, the researcher used a probability sampling method which is the stratified and convenience sampling method. This is used based on the intention and purpose of the study. Also, it is used depending on the availability and convenience of the respondents. To ensure that the survey was representative of the population of interest in this research, we combined stratified and convenience sampling techniques. Convenience sampling was utilized to include people who were easily accessible and willing to contribute to the survey while stratified sampling was used to target specific subgroups within the population.

E. Research Tools and Instruments

Interviews, Surveys, and questionnaires were used in the research study. Once the analysis is complete, it is necessary to validate and verify the constructs using the structural equation modeling (SEM) to facilitate the testing of hypotheses. According to the study by El Barachi (2022), there ought to be some preliminary testing done to determine whether the distribution of the data has satisfied the prerequisites and presumptions of multivariate analysis. The researcher used multiple regression tests to test its multicollinearity and when conducting a reliability test, Cronbach's alpha and composite reliability measures are both useful tools. In addition, the validity measure was examined by employing techniques such as confirmatory factor analysis (CFA), average variance extracted (AVE), and Heterotrait-Monotrait ratio of correlations (HTMT). All constructs with an AVE greater than 0.5 indicate that measurement error contributed insignificantly to the variance captured by those constructs. Discriminant validity was evaluated with HTMT, and if all the ratios

for the paired constructs are less than 0.90, then the reflective constructs are found to have established discriminant validity. Lastly, CFA was used to assess the degree to which the measured variables are a good representation of the number of constructs that could decide whether or not the criteria will be met and good fit.

F. Data Analysis and Interpretation

This study used covariance-based structural equation modeling (SEM) in AMOS v.26 to test the proposed research model which is also used by El Barachi et al. (2022). The covariance-based SEM approach is widely used to expand the method's capabilities such as approaches that makes more complex and comprehensive analysis than with the first-generation methods and helps in assessing the mediating effects, moderation, invariance/ equivalence of constructs across multiple groups and higher order modeling of constructs (Dash & Paul, 2021). Also, it is said that the goal of this approach is to minimize the difference between the observed and estimated covariance matrices, as opposed to maximizing explained variance.

G. Ethical Considerations

Through an informed consent letter, respondents were invited to answer the survey with an option not to divulge their name and were asked to take whatever time they need to decide to participate. The research intends to draw responses from the residents of Ibaan to represent the collective and adaptation towards a technological change. The informed consent informed the respondents that though no personal benefits is guaranteed for them, benefits may accrue to the Local Government of Ibaan in ways that the administration can make informed decisions based on the information resulting from this study. The responses were treated with the utmost confidentiality and results were utilized just for the sole purpose identified. However, the survey results were open to any partner who will use the information for the same purpose of drawing information for planning and decision-making. Participation was completely voluntary, and the undersigned believes that participation poses no anticipated risk, harm, discomfort, or inconvenience, whatsoever in any way. The proponent provided the necessary information to contact the researcher for any questions in the letter. The researcher also requested for the form to be unsigned for the following reasons.

- The researcher wishes that the identities of respondents be anonymous by choice.
- That there is the minimal risk on the part of the respondents; and,
- The researcher assures that sufficient information to satisfy the basic elements of informed consent is available to the respondents.

The researcher protects the rights of the respondents and participants helped to fulfill the research. Any other data needed from the current government and situation of the municipality, the researcher is the one who will ask properly and formally to the LGU.

H. Pilot Study

Conducting a pilot testing/study is crucial to be able to guarantee that the answers and the questionnaires from the final data collection are consistent, accurate, reliable, and valid. The wording of the surveys is improved and tested with the help of this test. Additionally, by providing a warning and allowing the researcher to make corrections to the dubious survey questions as well as the methodologies and instruments that would be used for the final data collection, this would prevent the research study from failing. In this research study, the statistician asked the researcher to conduct pilot testing to at least 20 respondents. With that reason, 30 questionnaires were distributed and sent to the people of the community through a Google Form link showing the 5-point Likert Scale questionnaire containing the Smart Services Readiness Scale in Table 2. The responses were collected from 27 participants.

I. Findings of Pilot Study

The pilot study was conducted to test the reliability and validity of the survey questionnaire and variables. The results showed that three variables (Innovativeness, Insecurity, and Intention to Continuously Use) had questionable reliability. To improve the reliability of these variables, the researcher checked the Item-Total Statistics of every item in all variables. The results showed that one item from each of the three variables needed to be removed to increase the Cronbach's alpha. The Table 3 shows the recommendations per variable:

Table 2
Recommendations per Variable

Variable	Cronbach	Interpretation	Recommendations	Possible Result
Optimism	.782	Acceptable	Retain	
Innovativeness	.695	Questionable	Remove Q1	Cronbach will increase to .706
Empowerment	.846	Good	Retain	
Insecurity	.687	Questionable	Remove Q2	Cronbach will increase to .717
Legal Considerations	.860	Good	Retain	
Mistrust	.790	Acceptable	Retain	
Discomfort	.888	Good	Retain	
Satisfaction	.952	Excellent	Retain	
Intention	.682	Questionable	Remove Q3	Cronbach will increase to .729

As a result of the pilot study conducted, the researcher used the survey questionnaires without those 3 items to conduct the main research as shown in Table 3.

The findings of the pilot study are significant because they provide valuable insights into the reliability and validity of the survey questionnaire and variables. The removal of the three items helped to improve the reliability and validity of the survey, which in turn lead to more accurate and reliable results.

Table 3
Final Smart Services Readiness Scale

Coding	Scale Item
OPTIMISM OP1	Smart Service makes me more efficient in my work or in school.
OP2	I rely on smart service to keep updated to the topics or issues around Ibaan.
OP3	Smart services contribute to a better quality of life in our municipality.
OP4	Smart services help me to build stronger relationships with my family, community, or organization.
INNOVATIVENESS	
IN2	Most of the time, I'm one of the first people in my group of friends or families to buy new smart technology when it comes out.
IN3	Most of the time, I can figure out how to use new smart services on my own.
IN4	I follow changes in smart services in the fields I'm interested in.
EMPOWERMENT EM1	I want to decide if smart services could keep track of how I use them or not.
EM2	I want to decide if I should give smart municipality service providers my personal information.
EM3	I want to control how smart service providers use my data.
EM4	I want to be asked before smart services send me to another system or website.
INSECURITY INS1	People are too dependent on smart services to do things for them.
INS3	Too many smart services are harmfully distracting.
INS4	Services in a smart municipality reduce the quality of relationships by having less contact with people
LEGAL CONSIDERATIONS LE1	Smart services may be hampered by a lack of regulation.
LE2	Some smart municipality services have authentication features that aren't very strong.
LE3	Smart services alter their terms and conditions without user consent.
MISTRUST MI1	I worry that smart service providers will not keep my personal information private.
MI2	Smart municipality services keep users from seeing important information (e.g., not showing the seat number in cinema ticket booked online)
MI3	The terms and conditions of smart services change often and are hard to keep up with.
MI4	Smart payments services are unsafe.

DISCOMFORT DI1	I sometimes feel like a provider or high-tech product, or service is taking advantage of me when I get technical support.
DI2	Technical support lines aren't helpful because they don't explain things in terms I can understand.
DI3	I sometimes think that technology systems aren't made for regular people to use.
DI4	There is no such thing as a user guide or instruction manual for a high-tech product or service that is written in simple language.
DI5	It's hard for me to keep up with all the new smart services.
DI6	The accessibility of smart services is an issue because of factors such as the use of touch screens and small screens, and the lack of accessibility features for people with disabilities.
DI7	Smart services don't fit consumers' habits and practices.
DI8	Smart systems are constantly evolving, and this can have a significant impact on the user experience.
DI9	The costs of smart services are high/ expensive.
DI10	It is embarrassing when I have trouble with technology/ smart services while people are watching.
SATISFACTION SA1	I am satisfied with the technical quality of the Smart services.
SA2	I am satisfied with the information I receive from the smart services.
SA3	I am satisfied with the quality of the service offered by the smart services.
SA4	I am satisfied with the way in which smart service providers adjust to my needs.
SA5	Overall, I am satisfied with the services offered by the smart services.
INTENTION TO CONTINUOUSLY USE IC1	I would like to continue using smart services in the future.
IC2	I will continue using smart services than using any alternative means.
IC4	I will strongly recommend others to use the smart services in Ibaan.

III.RESULTS AND DISCUSSION

This contains the analyses performed with the data using the appropriate statistical tools and achieved the following outcomes.

Table 5 presents the descriptive statistics on the respondent's perception on the level of readiness to continuously use the smart municipality services in the Municipality of Ibaan, Batangas. The respondents generally perceived the level of readiness as high. For the level of interpretation, refer to Table 4.

Table 4
Level of Interpretation

1.00	1.49	Very low
1.50	2.49	Low
2.50	3.49	Moderate
3.50	4.49	High
4.50	5.00	Very High

Table 5
Perception on the Level of Readiness

Item	Mean	SD	Interpretation
Enablers	3.84	0.77	High
Empowerment	3.88	0.84	High
Innovativeness	3.60	0.89	High
Optimism	4.03	0.90	High
Inhibitors	3.48	0.74	Moderate
Mistrust	3.42	0.81	Moderate
Insecurity	3.52	0.86	High
Legal Considerations	3.50	0.83	High
Readiness	3.66	0.68	High

The study found that enablers have a high level of readiness, indicating that there were no significant barriers to accessing smart services, and citizens had the necessary capabilities to use them continuously (Saeed, Bhatti, & Hussain, 2018). However, the study also revealed a moderate level of readiness in inhibitors that could potentially impede the intention to use these services (Al-Monawer et al., 2021). Inhibitors refer to the challenges or problems that citizens may encounter in using these services. Acknowledging these inhibitors is important to find opportunities for interventions, support, improvements, and enhancement of the services, rather than preventing citizens from using them.

Recent studies have shown that a high level of readiness to use smart services among citizens can indicate a positive attitude towards digital technologies and a willingness to access and interact with services offered by their municipality (Alzahrani et al., 2019; Wang et al., 2019). In the case of Ibaan, this high level of readiness may be due to the perceived benefits and advantages associated with smart services. Citizens may see these services increase convenience and efficiency in their daily lives, allowing them to access a wider range of services without leaving their homes (Saeed, Bhatti, & Hussain, 2018). This convenience is particularly important for citizens who have limited mobility, are in remote areas, or have busy schedules.

Moreover, the use of smart services can offer improved quality of life by reducing the time and effort required to access municipal services and resources (Mihindu et al., 2019; Vahdat et al., 2021). This improvement in quality of life can be achieved through a more efficient and effective service delivery system that is citizen-centered and responsive to their needs and preferences (Alzahrani et al., 2019).

Overall, the high level of readiness among citizens to use smart services in Ibaan suggests that the municipality has succeeded in promoting the benefits and advantages of these services, and in building citizens' confidence and trust in them. This positive attitude is likely to encourage further adoption and use of smart services in the municipality, leading to a more efficient, effective, and citizen-centered service delivery system (Wang et al., 2019; Vahdat et al., 2021).

Table 6 presents information on satisfaction and discomfort as predictor variables of intention to use SMS. The R^2 of 0.619 indicates 61.9 percent of variance in intention to use SMS can be predicted by measures of satisfaction and discomfort.

Table 6
Effect of Satisfaction and Discomfort on Intention to Use SMS

	Unstandardized B Coefficients	Standardized B Coefficients	p-value	Interpretation
Constant	0.124		0.571	
Satisfaction	0.823	0.709	0.000	Significant
Discomfort	0.185	0.152	0.002	Significant
$R^2 = 0.619$	F-value = 165.656		P-value = 0.000	

Dependent Variable: Intention to Use SMS

The estimated regression model for the intention to use SMS is:

$$\text{Intention to Use SMS} = 0.124 + 0.823 \text{ Satisfaction} + 0.185 \text{ Discomfort}$$

The regression equation above shows that measures of satisfaction and discomfort have an effect on intention to use smart services. A 1-unit increase in satisfaction and discomfort results to a 0.823 and 0.185 increase in the intention to use SMS respectively. Moreover, these effects are statistically significant at $p\text{-value} < 0.05$, indicating that they are unlikely to occur by chance. Therefore, the findings suggest that increasing satisfaction and reducing discomfort can increase the intention of users to use SMS.

This means that levels of satisfaction and discomfort play a significant role in determining whether the citizens intend to use smart municipal services. For instance, Azwar, Priyanto, and Rokhman's (2021) study discovered a positive correlation between user satisfaction and the intention to use smart municipal services. In a similar study, Yousaf, Sajjad, and Zafar's study from 2021 discovered that user comfort and satisfaction significantly predict citizens' intentions to use smart services. On the other hand, citizens' intentions to use smart services can also be impacted by discomfort or negative experiences with them. According to a study by Ali et al. (2020), citizens' adoption and use of smart services can be hampered by unease, particularly that related to privacy and security.

The significant effects of satisfaction and discomfort on citizens' intention to use smart municipal services can have practical implications for Ibaan. The municipality can focus on improving user satisfaction by ensuring that their smart services are user-friendly, efficient, and meet citizens' needs and expectations. Similarly, Ibaan can address citizens' discomfort by implementing adequate security and privacy measures to increase citizens' trust in smart services. Since with the result, it shows how important satisfaction and discomfort are in determining how likely citizens are to use smart municipal services, and how important it

is for municipalities to take these factors into account when attempting to promote and enhance smart services.

H1: Satisfaction has significant effects on the intention to use Smart municipality services while discomfort has negative influence.

H2: Discomfort has a significant effect on intention to use SMS.

Table 7 presents information on enablers and inhibitors as predictor variables of satisfaction. The R^2 of 0.439 indicates 43.9 percent variance in satisfaction can be predicted by measures of readiness in terms of enablers and inhibitors.

Table 7
Effect of Enablers and Inhibitors on Satisfaction

	Unstandardized B Coefficients	Standardized B Coefficients	p-value	Interpretation
Constant	1.073		0.000	
Enablers	0.612	0.602	0.000	Significant
Inhibitors	0.097	0.090	0.181	Not Significant
$R^2 = 0.439$	F-value = 79.97		P-value = 0.000	

Dependent Variable: Satisfaction

The estimated regression model for Satisfaction is:

$$\text{Satisfaction} = 1.073 + 0.612 \text{ Enablers} + 0.090 \text{ Inhibitors}$$

The regression equation above shows that the measures of enablers and inhibitors have an effect on satisfaction. A 1-unit increase in the enablers results to a 0.612 increase in satisfaction and these effects are statistically significant at $p\text{-value} < 0.05$. A 1-unit increase in the inhibitors results to a 0.097 increase in satisfaction and these effects are not statistically significant at $p\text{-value} > 0.05$.

This means that the levels of enablers and inhibitors have an impact on how satisfied citizens are with smart municipal services. The results imply that an increase in enablers is accompanied by a rise in satisfaction. The term "enablers" refers to elements that facilitate the use of smart services, such as their usability, accessibility, and ease of use. This is in line with several recent studies that found enablers to be essential components in figuring out how satisfied users are with smart municipal services.

For instance, Aloudat and Michael (2019) research observed that the usefulness and usability of smart services were important predictors of citizens' satisfaction with smart municipality initiatives. The accessibility and availability of smart services were also found to be significant enablers that influenced citizen satisfaction with smart city services, according to a study by Moon and Lee (2020). On the other hand, the result also implies that the impact of inhibitors has a smaller effect on satisfaction, and the effect is not statistically significant. Inhibitors are things that make it difficult to use smart services, like worries about security and privacy, a lack of trust in the services, or lack of knowledge of the services.

For instance, a study by Aloudat and Michael (2019) found that ease of use and usefulness of smart services were significant predictors of citizen satisfaction with smart city initiatives. Also, a study by Moon

and Lee (2020) found that accessibility and availability of smart services were important enablers that influenced citizen satisfaction with smart city services. But, on the other hand, the result also suggests that inhibitors have a smaller effect on satisfaction, and the effect is not statistically significant. Inhibitors refer to factors that hinder the use of smart services, such as concerns about privacy and security, lack of trust in the services, or lack of awareness about the services. According to a recent study by Zhang, Xiong, and He (2021), inhibitors had a less significant effect on citizen satisfaction with smart city services than enablers.

The significant effect of enablers on satisfaction can imply that Ibaan can focus on improving enablers by ensuring that their smart services are easy to use, accessible, and useful to citizens. By doing so, Ibaan can increase citizens' satisfaction with smart services and encourage further adoption and use of these services. This result emphasizes how important enablers are in determining how satisfied citizens are with smart municipal services and the necessity for municipalities to take these factors into account when promoting and enhancing smart services. This implies that addressing enablers can have a stronger and more significant impact on satisfaction than doing the same for inhibitors, which have a weaker and less significant impact.

H3: Enablers (Empowerment, innovativeness, optimism) have a significant effect on satisfaction.

H5: Inhibitors (mistrust, insecurity, and legal considerations) have a significant effect on satisfaction.

Table 8 presents information on enablers and inhibitors as predictor variables of discomfort. The R^2 of 0.661 indicates 66.1 percent of variance in discomfort can be predicted by measures of readiness in terms of enablers and inhibitors.

	Unstandardized B Coefficients	Standardized B Coefficients	p-value	Interpretation
<i>Constant</i>	0.396		0.019	
<i>Enablers</i>	0.051	0.053	0.315	<i>Not Significant</i>
<i>Inhibitors</i>	0.794	0.778	0.000	<i>Significant</i>
R ² = 0.661	F-value = 198.45		P-value =0.000	
Dependent Variable: Discomfort				

The estimated regression model for Discomfort is:

$$\text{Discomfort} = 0.396 + 0.051 \text{ Enablers} + 0.794 \text{ Inhibitors}$$

The regression equation above shows that the measures of enablers and inhibitors have an effect on discomfort. A 1-unit increase in the enablers results to a 0.051 increase in discomfort and these effects are not statistically significant at $p\text{-value} > 0.05$. A 1-unit increase in the inhibitors results to a 0.794 increase in discomfort and these effects are statistically significant at $p\text{-value} < 0.05$.

According to the result, measures of enablers and inhibitors have an impact on how comfortable people are using smart municipal services. The regression equation demonstrates that while an increase in enablers has no significant effect on discomfort, an increase in inhibitors causes discomfort to increase.

This finding is consistent with recent studies, which have identified inhibitors as significant factors in determining citizen discomfort with smart municipal services. In a study by Chauhan, Gupta, and Singh (2020) found that privacy concerns and lack of trust were significant inhibitors that hindered citizen adoption and use of smart services. Similarly, a study by Kim, Lee, and Lee (2018) found that perceived risks, including privacy and security concerns, were significant factors that influenced citizen discomfort with smart city services. Enablers having no significant effect on discomfort suggest that addressing inhibitors may be more important than improving citizen comfort with smart services. Ibaan can address inhibitors by implementing adequate security and privacy measures to increase citizens' trust in smart services such as using strong encryption, implementing data security policies, and conducting regular security audits. Additionally, Ibaan can provide clear and accessible information about the services to increase citizen awareness by creating user-friendly interfaces, providing detailed information about the services, and using plain language. Lastly, Ibaan can reduce concerns about the services by building trust with their citizens by being transparent about how data is collected and used and providing citizens with the ability to control their data.

H4: Enablers (Empowerment, innovativeness, optimism) have a significant effect on discomfort.

H6: Inhibitors (mistrust, insecurity, and legal considerations) have a significant effect on discomfort.

Table 9
Mediating Effect of Satisfaction on the Relationship between Enablers and Intention to Use SMS

	Unstandardized B Coefficients	p-value	Interpretation	R square	Indirect Effect	Percent Mediation
<i>Constant</i>	0.640	0.006				
<i>Enablers</i>	0.833	0.000	Significant	0.498		
<i>Constant</i>	-0.114	0.569			0.425	51.08
<i>Enablers</i>	0.407	0.000	Significant			Partial Mediation
<i>Satisfaction</i>	0.635	0.000	Significant	0.668		
R ² change=0.169 Sig F change = 0.000 F-value =204.93 P-value=0.000						

H7: Satisfaction mediates the relationship between readiness (enablers) and intention to continuously use SMS.

The result in *Table 9* says that there is a partial mediation of 51.08% satisfaction to enablers and intention to continuously use smart services. This means that the effect of enablers on intention to continuously use smart services is partially mediated by satisfaction. Studies have shown that satisfaction is a key factor in determining the intention to continuously use smart services. For example, a study by Fan, Zhao, and Liu (2018) found that user satisfaction was positively related to the intention to use smart city services continuously. Similarly, a study by Aloudat and Michael (2019) found that citizen satisfaction was a significant predictor of the intention to use smart city services.

Moreover, studies have also found that enablers play an important role in determining satisfaction with smart services. For instance, a study by Chen and Li (2019) found that ease of use and usefulness of

smart services were important factors in determining user satisfaction with smart city services. Similarly, a study by Moon and Lee (2020) found that accessibility and availability of smart services were important enablers that influenced citizen satisfaction with smart city services.

The partial mediation of satisfaction on the relationship between enablers and intention to continuously use smart services suggests that satisfaction is an important factor in determining the effect of enablers on the intention to continuously use smart services. This result has practical implications for Ibaan and service providers to promote the use of smart services among citizens. By focusing on improving enablers that increase user satisfaction, Ibaan can increase the intention of citizens to continuously use smart services. Ibaan can achieve this by having a smart service that is more accessible and available by expanding the reach of smart services to more areas of the municipality or making them available 24/7, have a smart service that are easier to use to simplify the user interface and have more user support and make it more useful by adding new features and functions that could cater the specific needs of Ibaeños.

Table 10
Mediating Effect of Satisfaction on the Relationship between Inhibitors and Intention to Use SMS

	Unstandardized B Coefficients	p- value	Interpretation	R square	Indirect Effect	Percent Mediation
Constant	1.561	0.000				
Inhibitors	0.654	0.000	Significant	0.278		
Constant	-0.021	0.924			0.393	60.18
Inhibitors	0.260	0.000	Significant			Partial Mediation
Satisfaction	0.785	0.000	Significant	0.635		
R ² change=0.357 Sig F change = 0.000 F-value =177.14 P-value=0.000						

H8: Satisfaction mediates the relationship between readiness (inhibitors) and intention to continuously use SMS.

There is partial mediation of 60.18% satisfaction to inhibitors and intention to continuously use smart services as the result above in *Table 10*. This means that the relationship between satisfaction and intention to use smart services is partially influenced by inhibitors. One study that supports this finding is by Javed, Shafique, and Ali (2021), which examined the impact of inhibitors on user satisfaction and intention to use e-government services. The study found that inhibitors, such as security concerns and lack of trust in the system, had a negative impact on user satisfaction and intention to use the services. Another study by Zhang, Xiong, and He (2021) also supports this finding, as it found that inhibitors had a weaker impact on citizen satisfaction with smart city services than enablers. This suggests that inhibitors may still have some influence on satisfaction and intention to use smart services, but to a lesser extent than enablers.

The partial mediation effect of inhibitors on satisfaction and intention to use smart services highlights the importance of addressing these inhibitors to encourage greater adoption and use of smart services. Ibaan should address privacy and security concerns such as payments safety concerns, harmfully distracting smart services, authentication issues, lack of regulations and hard to keep up with by using strong

encryption and security measures to protect user data and providing clear and transparent privacy policies, designing smart services that are less visually and aurally stimulating, and providing users with the ability to control their notifications, involve using multi-factor authentication, and requiring users to create strong passwords, developing regulations that protect users' privacy and security and making a more user-friendly with a clear and concise instructions to increase user satisfaction and intention to use these services.

Table 11
Mediating Effect of Discomfort on the Relationship between Enablers and Intention to Use SMS

	Unstandardized B Coefficients	p-value	Interpretation	R square	Indirect Effect	Percent Mediation
Constant	0.640	0.000				
Enablers	0.833	0.000	Significant	0.498		
Constant	0.461	0.063			0.070	8.46
Enablers	0.762	0.000	Significant			Partial Mediation
Discomfort	0.134	0.061	Significant	0.507		
R ² change=0.009	Sig F change = 0.061		F-value =104.90		P-value =0.000	

H9: Discomfort mediates the relationship between readiness (enablers) and intention to continuously use SMS.

The finding that discomfort has a partial mediation of 8.46 percent in the relationship between enablers and intention to continuously use smart services suggests that enablers have a direct impact on users' intention to use smart services, but this relationship is partially explained by the level of discomfort experienced by users, as shown in *Table 11*. This implies that while enablers positively influence users' intention to use smart services, the presence of discomfort can partially diminish this positive effect.

Previous research supports the importance of considering discomfort and its role in influencing users' intention to use smart services. For example, a study by Li, Wang, and Li (2019) examined the factors affecting users' satisfaction and intention to use smart services. They found that discomfort, particularly related to high costs, negatively affected users' satisfaction, and intention to use smart services. Furthermore, another study by Wang and Chen (2018) explored the relationship between user experience and intention to use smart services. They identified discomfort as a significant factor that impacted users' intention to use smart services, highlighting the need for service providers to address users' discomfort to encourage continuous usage.

Considering these findings, it is important for Ibaan to prioritize the reduction of discomfort in the delivery and implementation of smart services. This can be achieved by addressing issues such as cost by subsidizing the cost of smart services, offering discounts, or providing free trials, usability by making smart services easier to use, providing clear instructions, and using user-friendly interfaces, reliability by ensuring that smart services are available when needed, fixing any bugs or glitches, and providing customer support, and privacy concerns by involve being transparent about how data is collected and used, providing users with the ability to control their data, and using strong security measures to protect data from unauthorized access.

By minimizing discomfort and maximizing the positive impact of enablers, service providers can enhance users' intention to continuously use smart services and improve overall user satisfaction.

Table 12
Mediating Effect of Discomfort on the Relationship between Inhibitors and Intention to Use SMS

	Unstandardized B Coefficients	p-value	Interpretation	R square	Indirect Effect	Percent Mediation
Constant	1.561	0.000				
Inhibitors	0.654	0.000	Significant	0.278		
Constant	1.506	0.000			0.097	14.77
Inhibitors	0.557	0.000	Significant			Partial Mediation
Discomfort	0.117	0.347	Significant	0.281		
R ² change=0.003 Sig F change = 0.347 F-value =39.842 P-value =0.000						

H10: Discomfort mediates the relationship between readiness (inhibitors) and intention to continuously use SMS.

There is a partial mediation of 14.77 percent on discomfort to inhibitors and intention to continuously use smart services, as shown in *Table 12*. This implies that the negative impact of inhibitors on intention to use smart services continuously is partially explained by the level of discomfort experienced by users. This result is supported by research that has identified inhibitors as a significant factor that affects user satisfaction and intention to use smart services (Wang & Chen, 2019; Li, Wang, & Li, 2019). For example, Li, Wang, and Li (2019) found that high cost is an inhibitor that can negatively affect users' satisfaction and intention to use smart services. Similarly, Wang and Chen (2019) found that inhibitors such as perceived difficulty and complexity of using the service can lead to lower user satisfaction and intention to use smart services.

There could be discomfort if an expensive smart service was purchased by a user, but it does not work properly or consistently. The user may feel discomfort because of the cost of the device and the frustration of not being able to use it effectively. This discomfort may then contribute to a decreased intention to continue using the device or other smart services in the future. In this case, the presence of enablers such as reliable customer support or easy-to-use interface could partially mediate the negative impact of inhibitors on the user's intention to use smart services continuously.

To address these inhibitors and promote the continuous use of smart services, Ibaan and service providers may need to take steps to improve users' comfort levels and reduce concerns about negative factors such as high price, privacy, and security.

IV.CONCLUSION

This study investigated citizen readiness, satisfaction, discomfort, and the intention to continuously use smart municipality services in the Municipality of Ibaan, Batangas. Key findings from this study have important implications for business practice in Ibaan.

Satisfaction has a significant effect on the intention to use Smart municipality services while discomfort has a negative influence which appeared in the results. Satisfaction and discomfort have a significant effect in the intention to continuously use of smart municipality services but the discomfort could influence it negatively.

Enablers have a significant effect on satisfaction which is according to the results of the study that an increase in enablers is accompanied by a rise in satisfaction and have a weaker or less significant impact when it comes to discomfort.

Inhibitors have a significant effect on discomfort based on findings that inhibitors are significant factors in determining citizen discomfort with smart municipal services while having smaller effect on satisfaction that is not significant.

It was also found out that satisfaction mediates the relationship between readiness (enablers) and intention to continuously use SMS which means that the effect of enablers on intention to continuously use smart services is partially mediated by satisfaction.

Satisfaction mediates the relationship between readiness (inhibitors) and intention to continuously use SMS that implies that the relationship between satisfaction and intention to use smart services is partially influenced by inhibitors.

Discomfort mediates the relationship between readiness (enablers) and intention to continuously use SMS which means that enablers could positively influence users' intention to use smart services but the presence of discomfort can partially diminish this positive effect.

Lastly, discomfort mediates the relationship between readiness (inhibitors) and intention to continuously use SMS wherein discomfort may then contribute to a decreased intention to continue use the smart municipality services in the future.

In conclusion, this study highlights the importance of user satisfaction and discomfort in shaping the intention to use smart municipality services. The findings have practical implications for Ibaan, contribute to existing literature by addressing gaps, and open new research avenues. By focusing on enhancing satisfaction, minimizing discomfort, and exploring innovative approaches, Ibaan can optimize service delivery and cultivate a positive user experience, ultimately contributing to the development of smarter, more citizen-centric municipalities.

Overall, this study provides valuable insights into the factors that influence citizens' willingness to use smart services. The findings of the study can be used by governments, businesses, and service providers to design and implement smart services that are more likely to be adopted and used by citizens.

V.RECOMMENDATION

The study found that user satisfaction and discomfort are key factors in the intention to use smart services. Ibaan can increase the adoption of smart services by focusing on the following recommendations, first, focus on enhancing user satisfaction. Based on findings that satisfaction has a significant effect on the intention to use smart municipality services, this means that citizens who are satisfied with the services are more likely to continue using them. Therefore, by focusing on enhancing satisfaction, we can encourage

citizens to use the smart services and to become more loyal to use it continuously. Second, Ibaan should minimize the discomfort brought by the smart services. This was based in the results where the researcher found that discomfort has a negative influence on the intention to use smart municipality services. This means that citizens who are uncomfortable with the services are less likely to continue using them. Therefore, by minimizing discomfort, we can increase the satisfaction of the citizens that could lead to a continual usage of these services. Third is to explore innovative approaches, since the researcher found that satisfaction and discomfort are two key factors that influence intention to use smart municipality services. It is also found that satisfaction mediates the relationship between readiness and intention to use smart municipality services. This means that satisfaction partially explains the relationship between readiness and intention to use the services and by exploring innovative approaches, Ibaan can improve satisfaction and minimize discomfort. This will lead to a greater intention to use smart municipality services and a more citizen-centric municipality. Fourth is to align strategies with user needs and expectations so Ibaan can improve satisfaction and minimize discomfort. This will increase the intention to use smart municipality services and a more competitive municipality. Lastly is to optimize service delivery and cultivate a positive user experience which would also lead to improvement on satisfaction and decrease in discomfort which could help to increase the intention to continuously use smart services.

A. Limitations of Research

Overall, the study has several limitations that should be considered when interpreting the findings. Future research that addresses these limitations could provide a more comprehensive understanding of citizen readiness, satisfaction, discomfort, and intention to use smart municipality services. First, the external factors and policy considerations: The study did not consider the impact of external factors, such as government policies, regulatory frameworks, or funding mechanisms, on citizen readiness and continuous use of smart municipality services. Future researchers could investigate these factors to better understand the adoption and sustainability of such services. Second, cross-sectional design: The study utilized a cross-sectional design, which captures data at a specific point in time. This design limitation restricts the ability to establish causality between variables and only provides a snapshot of participants' attitudes and behaviours. Longitudinal or experimental designs would be needed to examine changes over time and establish stronger causal relationships. Third, limited scope of variables: The study focuses on enablers (empowerment, innovativeness, optimism) and inhibitors (mistrust, insecurity, legal considerations) as the main factors influencing readiness, satisfaction, discomfort, and intention to use smart municipality services. However, other variables or contextual factors that may impact these relationships, such as socio-economic factors, technological infrastructure, or cultural influences, are not explicitly considered. These unaccounted variables may introduce additional complexities and limitations to the study. Fourth, limited mediation effects: The study identifies partial mediation effects of satisfaction and discomfort on the relationship between enablers/inhibitors and intention to use smart municipality services. However, the specific mechanisms and underlying factors contributing to these mediation effects may not be fully explored or

accounted for in the study. Further research is needed to examine deeper into these mediation processes and identify additional potential mediating factors. And lastly, user experience and user-centered design: Future researchers could research deeper into the user experience aspect of smart municipality services. Conducting usability studies, user satisfaction surveys, or incorporating user-centered design principles can help identify specific usability issues, user preferences, and areas for improvement, ultimately enhancing the overall user experience and facilitating continuous use.

B. CAPSTONE

The researcher proposed to modernized Ibaan by developing and enhancing the current smart services of the Municipality of Ibaan, Batangas to ensure the continual usage of Smart Municipality Services in the said municipality and created a CAPSTONE Project action plan (See Appendix D).

Evidence of Success

To know if this project plan is making a progress, the Municipality of Ibaan should be able to achieve the following: Increased user satisfaction with smart municipality services, Reduced discomfort levels among citizens, Increased intention to use smart municipality services, Improved security and privacy measures, Increased transparency and accountability, Enhanced user engagement, Increased innovation, and Improved efficiency and effectiveness.

Evaluation Process

To determine if the goal was reached, the municipality will conduct some ways of measures such as, Surveys, Interviews, Social media monitoring, public hearings, and citizen feedback mechanism.

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