The effect of service quality, utilisation of management information systems, and communication on participant satisfaction with trust as an intervening variable on Taspen pension participants in the Tanjungpinang City

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Abstract
Purpose: The purpose of this study was to analyze the satisfaction of retired participants in Taspen in the Tanjungpinang city area.
Methodology: This study uses the variables of service quality, use of management information systems, and communication on participant satisfaction through trust. The study population included retired participants in the Taspen, Tanjungpinang city area. Meanwhile, the sample used in this study included as many as 150 people from the population. Data were collected using the questionnaire method by providing a list of questions or questionnaires directly to respondents. In this study, the researcher used SPSS ver.23 and SEM-PLS version 4 data processing.
Results: This study shows that Service Quality (X1) directly has a positive and significant effect on trust (Z) with P-Value by $0.001 < 0.05$, the Utilization of Management Information System (X2) directly has a positive and insignificant effect on trust (Z) with P-Value by $0.108 > 0.05$, Communication (X3) directly has a positive and significant effect on trust (Z) with P-Value by $0.000 < 0.05$, Service Quality (X1) directly has a positive and insignificant effect on satisfaction (Y) with P-Value by $0.063 > 0.05$, the Utilization of Management Information System (X2) directly has a positive and significant effect on satisfaction (Y) with P-Value by $0.000 < 0.05$, Communication (X3) directly has a positive and insignificant effect on satisfaction (Y) with P-Value by $0.327 > 0.05$, trust (Z) directly has a positive and significant effect on satisfaction (Y) with P-Value by $0.031 < 0.05$, the service quality variable (X1) mediates trust (Z) on participant satisfaction (Y) with P-Value by $1.978 > 1.540$, the variable Utilization of Management Information System (X2) does not mediate trust (Z) on participant satisfaction (Y) with P-Value by $0.887 < 17.324$, the Communication variable (X3) does not mediate the trust (Z) on participant satisfaction (Y) with P-Value by $0.1.501 > 0.450$. The R-squared value for the confidence variable (Z) was 0.528 (52.8%), while the remaining 47.2% was explained by other variables outside the model. The R-squared value of the satisfaction variable (Y) was 0.489 (48.9%), while the remaining 51.1% indicated that Z had a mediating effect between X1, X2, and X3 on participant satisfaction (Y).
Keywords: *Service Quality, Utilization of Management Information Systems, Satisfaction, Trust.*
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1. Introduction

Taspen (Persero) is a State-Owned Enterprise (BUMN) engaged in old-age savings insurance and pension funds for the State Civil Apparatus (ASN) and State Officials. Taspen is trusted by the government to handle the welfare of all ASN. Taspen has four main products: Old Age Savings (ENT), pension programs, death insurance (JKM), and Work Accident Insurance (JKK). Civil servant pension payment services can be paid in cash at the main branch office (KCU) or branch office (KC) of Taspen or can also be paid through post offices and banks that collaborate with Taspen. Many new innovations have been introduced by Taspen to improve the quality of service for Taspen participants. In 2018, Taspen released an application called Taspen Authentication. Taspen Authentication is an application that functions to make it easier for retirees to prove themselves. The Taspen Authentication application can be downloaded for free on the Google Playstore and App Store with the aim of improving services that can be accessed through smartphone devices

This application works by pointing the smartphone camera at the face of the retired participant without having to come to the office or payment partner for authentication. Taspen Authentication utilizes participant biometric data that are unique to each individual to avoid errors in pension payments. Taspen issued this new innovation by referring to the five principles of Taspen, namely the right people, the right time, the right administration, the right place, and the right number, so that the distribution of participants' rights is not mistargeted. When starting the authentication process, retired participants are asked to enter NOTAS (Taspen Number) in the column, and then retired participants are asked to pay attention to the instructions requested by the face detector, after which they must follow all the instructions given on the screen. If it fails, the application will automatically repeat the process, and if successful, the application will display the enrollment data of the participant who has authenticated; although employees have given a clear explanation, not a few find it difficult to understand. This affects customer satisfaction when using an application. Proper communication can turn the disappointment that arises into customer satisfaction, so that customers can still decide to use our services, which is what is called winning the hearts of customers.

Here, trust relies on a person or something that is believed to have consequences on the relationship between the trustee and the trustee. Trust is manifested in the form of trusting a person or a group of people. Pension savings are mandatory and have been regulated in Law No. 20 of 2023. However, Taspen still had to build trust among retired participants. This is due to an incident in AJB Bumiputera, who is in arrears in payments to their customers. Quoted on the news page of the House of Representatives of Indonesia commission IX, PT Jiwasraya, which defaulted, and PT Asabri, suffered losses due to errors in financial management and placement of the company's investment funds carried out by the company's old management. Trust affects customer satisfaction. High trust by retirement participants in the company will provide a sense of satisfaction in using the product or service.

From the existing phenomenon, the researcher is interested in conducting an analysis to determine the problems that occur by analyzing the influence between the variables of Service Quality, Management Information System Utilization, and Communication on Satisfaction through Trust. The results of this study are expected to identify the shortcomings of Taspen KC Tanjungpinang, where the researcher conducted research to provide the best solution related to the problems that have been previously expressed. The title of the research proposed by the researcher in this thesis is **"The effect of service quality, utilisation of management information systems, and communication on participant satisfaction with trust as an intervening variable on taspen pension participants in the Tanjungpinang City"**

2. Literature Review

2.1 Satisfaction

The word "satisfaction" or *satisfaction* comes from the Latin words "*satis*" (the heart is quite good, adequate) and "*facio*" (to do or make), so it can be simply interpreted as an effort to fulfill something. According to Kotler (2012), satisfaction is a person's feelings of pleasure and disappointment caused by the performance or results of a product that are perceived compared to their expectations. Every service provided by a company to its consumers will create a value of satisfaction with the costs incurred to meet that satisfaction.

Kotlers (2009) stated that satisfaction is a state of liking or disliking the impression caused by the product received. Satisfaction is based on the fulfillment of needs and all expectations, both from the products consumed and the services that have been received and felt. Sahatatua et al. (2024) states that satisfaction is a summary of the psychological state produced when emotions overflow with inappropriate expectations and are multiplied by the feelings created about consumers who have experienced consumption.

From the explanation above, it can be concluded that satisfaction is defined as the onset of feelings of liking or disappointment with the product or performance received, and getting the needs and desires that are in accordance with consumer expectations.

2.2 Trust

"*Trust*" is the trust of another person towards a certain party in carrying out a selling or buying relationship based on the trust in that person that something is expected to meet his expectations (Priansa, 2018). According to Kotler and Keller (2016), trust is the most important psychological factor, which is related to whether trust is true or not, based on evidence, suggestions, authority, experience, and intuition.

Another opinion, according to Mayer, Davis, and Schoorman (1995), in trust is that an individual's readiness to obtain the consequences of activities carried out by others is based on the desire that the party can fulfill their wishes. According to Morgan, trust is a person's desire to rely on others who have faith in them. According to Deutsch (Ohide & Mbogo, 2017), trust is the behavior of an individual who expects someone to provide positive benefits. There is trust because the trusted individual can benefit from and do what the individual who gives the trust wants.

From some of the experts' definitions, trust can be interpreted as having a relationship with a person's trust in the truth or not of something, and trust is not immediately recognized by other parties but must be built from scratch and, of course, must be proven.

2.3 Quality of Service

The term service comes from the word "*layan*" which means to help provide everything that is needed by others for the act of serving. Kotler (2012) states that customer satisfaction is a person's feelings of pleasure and disappointment caused by the performance or results of a product that are perceived, compared to their expectations. According to Tjiptono (2005), service quality is a dynamic condition related to products, services, human resources, processes, and the environment, which meets or exceeds expectations.

According to Wickof (in Tjiptono (2005)), service quality is the expected level of excellence and control of that level of excellence to meet customer desires. Parasuraman, Zeithaml, and Berry (1985) argued that service quality is what consumers expect from service by providing a comparison between the company's service to consumers and the service provided.

Goeth and Davis (2005) state that service quality is a dynamic condition related to products, services, people, processes, and environments that meet or exceed expectations. Based on some of the above definitions of service quality, it can be concluded that service quality is a dynamic condition that involves various aspects that must meet or exceed customer expectations. Service quality emphasizes

the level of excellence and ability to meet customer desires through various elements, such as products, services, people, processes, and the environment.

2.4 Utilization of Management Information Systems

According to Lestari et al. (2021), a management information system can be used by executives to obtain correct information and facilitate the management of the management process. According to Pahlephi (2022), a planning system that is part of the internal control of the business is a management information system. Management information systems include documents, people, technologies, and procedures. According to Scott (1997), a management information system is a set of information systems that interact with each other, providing information either for the benefit of operations or managerial activities.

According to Rajabi and Ghalehteimouri (2022), management information systems are a stage of management in which there is a system with power similar to that of the computer brain, where one of the strengths is to ensure the readiness of information data for users in the same need. According to Afrin, Sehreen, Polas, and Sharin (2020) the explanation of the management information system or SIM is a unit of hardware and software that is exclusively designed to be able to integrate data into one original and useful digital information.

According to El Fallahi, Ibenrissoul, and Adil (2022), a management information system is a system that is integrated between humans and machines that is able to provide information in such a way as to support the operational, management, and decision-making functions in an organization or company. From some of the definitions of the experts above, it can be concluded that a management information system is used in an organization to obtain the right information to facilitate the management of management processes and decision-making. It involves various elements, such as documents, people, technology, and procedures that interact to provide useful information for managerial operations and activities.

2.5 Communication

In English, communication is derived from the Latin word *communication* and from the word *communis*, which means the same. This means that every communication activity is carried out to achieve the same meaning for the communicator and the communicator. According to Terry and Franklin, communication is the art of developing and gaining an understanding among people. Communication is the process of exchanging information and feelings between two or more people and is important for effective management (Mondal, Akter, Moni, & Polas, 2023).

In addition, communication according to Carl Hovland in Effendy, Nurninawati, and Setiyawan (2022) also defines communication as *"The process by which an individual (the communicator) transmits stimuli (usually verbal symbols) to modify the behavior of other individuals (communies)."* The process by which a person (communicator) delivers stimuli changes the behavior of others (communicator). In the sense put forward by Carl, communication is defined as the process of conveying messages that are mostly in the form of language, both oral and written, to change behavior.

According to Sutadji (2016), communication is the process of sending and receiving messages or information from two or more individuals or groups. This process involves conveying the message through various channels, such as oral, written, or non-verbal channels, and involves understanding and responding to the message. According to Almagro and Edig (2024), communication is an activity in which a person conveys a message through certain media to another person, and after receiving the message, it responds to the sender of the message.

Rogers and Kincaid (Khan & Hossain, 2021) state that communication is a process in which two or more people form or exchange information with each other, which in turn leads to a deep mutual understanding. Communication is a transaction, a symbolic process that requires people to regulate their environment by building relationships with fellow humans through the exchange of information to

strengthen the attitudes and behaviors of others and try to change those attitudes and behaviors (Olayemi, 2020). From the descriptions of the experts above, it can be concluded that communication is the process of receiving information from two or more people and then responding to the sender.

2.6 Relationship Between Variables
2.6.1 The Relationship of Service Quality Variables to Satisfaction
Satisfaction can be interpreted as an attitude of happiness or disappointment formed after customers experience using a company's products or services. Kotlers (2009) stated that consumer satisfaction is the level of a person's feelings after comparing the performance or results. If performance is in line with the fulfillment of consumer expectations, customers will be satisfied. This means that consumers form a more pleasant perception of a product or service that has been positively evaluated by consumers.

One assessment of participant satisfaction was the quality of the company's services. According to Tjiptono (2005), service quality is a real behavior provided by companies that have a close relationship with consumer satisfaction and can encourage consumers to establish a strong relationship with the company and a long-term bond. Companies will continue to understand consumer needs and expectations.

Research on service quality was conducted by Sirojudin, Welsa, and Ningrum (2023) who said that the results of the study showed that service quality had a positive and significant effect on participant satisfaction. This means that service quality is the main factor in the context of service, where consumers are facilitated in obtaining information and needs provided by the company. Thus, the following hypothesis was proposed:
H1   : Quality of service affects the satisfaction of Taspen retirement participants in the Tanjungpinang City area.

2.6.2 The Relationship of Information System Utilization Variables to Satisfaction
In the current era of globalization, it is undeniable that information technology is increasingly sophisticated, and every human being is required to be able to follow the advancement of information technology, with the existence of an information system that runs in accordance with the expectations of this participant to satisfy the company's expectations. According to Mabhanda (2024), SIM is a management tool used to support the company's management in receiving, processing, and managing the company properly and systematically, with the aim of supporting the creation of company performance.

This is in line with previous research conducted by Ndoh and Umbugadu (2024) entitled The Influence of Smartphone Application-Based Management Information Systems and Service Quality on Customer Satisfaction at PT. Graha Ekakurir Siliwangi Pasar Kemis Route. The results of this study show that partially variable management information systems have a positive effect on customer satisfaction. Thus, the following hypothesis was proposed:
H2   : The use of management information systems affects the satisfaction of Taspen pension participants in Tanjungpinang City.

2.6.3 The Relationship of Communication Variables to Satisfaction
Communication is an activity that cannot be separated from daily life. According to Jalasi and Ambad (2020), communication is the process of conveying messages from one person to another, with the aim of changing attitudes both directly and indirectly. Good communication skills are necessary for people to interact with others. In particular, if all activities carried out daily must be related to other people, that person must have the ability to communicate well, because good communication can cause satisfaction in participants towards the company.

According to research by Sarker, Gain, Saha, Mondal, and Ifte (2024) interpersonal communication has an effect on consumer satisfaction, it is explained that a proactive information process shows that satisfaction can be improved by communication. The findings are supported by the results of Rahman

and Shanjabin (2022), where communication carried out by authorized officers in the Customs Office area is assessed by the community as service recipients about how employees or officers can be friendly and open in providing services, including information and direction to people who need services. Thus, the following hypothesis was proposed:

H3   : Communication affects the satisfaction of retired Taspen participants in the Tanjungpinang City area.

2.6.4 The Relationship of Service Quality Variables to Trust

To increase consumer trust and loyalty, companies engaged in any field must provide good service quality. In Musah and Adutwumwaa's (2021) theory, a person who believes on the other side will be willing to depend on the other party within a certain risk limit.

This is in accordance with the results of research by Suherna and Nasiatin (2023) entitled The Influence of Service Quality on Customer Trust and Loyalty Mediated by Customer Satisfaction. Quality of service affects trust because the quality of service provided by Beauty Clinic Inc. to customers is generally good enough to give rise to trust in the face of each customer. If a good quality of service is provided to customers, then these customers will feel satisfied and believe that the company provides quality service according to customer expectations. Thus, the following hypothesis was proposed:

H4   : Quality of service affects the trust of Taspen retirement participants in the Tanjungpinang City area.

2.6.5 The Relationship of Variables of Management Information System Utilization to Trust

The application of information systems and technology can be considered successful if it can increase customer trust, which in turn can improve company performance. With the implementation of information systems and technology, companies must prepare human resources (HR) (Baron & Cruz, 2023). The application of technology in a company's information system should consider the user of the system so that the technology applied can be useful according to the user's duties and capabilities. Budianto et al. (2022) explained that by adding a variable of trust in new information system technology, it further improves individual performance. Thus, the following hypothesis was proposed:

H5   : The use of influential management information systems to trust aspen pension participants in the region of Tanjungpinang City.

2.6.6 The Relationship of Communication Variables to Trust

Communication was another variable that affected trust. Thalib, Kumadji, Edis, and Saikim (2023) said that trust can be interpreted as trust that arises because customers feel satisfied and comfortable in fulfilling the responsibilities of the provider of goods and services. Trust is the willingness to engage in exchanges with trusted partners owing to their reliability and integrity.

According to Siahaan et al. (2020), communication is an activity that conveys information through the exchange of thoughts, messages, or information, such as speech, writing, or behavior. Good communication is often associated with quality and quantity of information. Thus, effective communication can create trust among customers. This is in accordance with Tamindael and Ruslim (2021), who state that communication has a positive influence on trust. Thus, the following hypothesis was proposed:

H6   : Communication affects the trust of Taspen retired participants in the Tanjungpinang City area.

2.6.7 The Relationship of Confidence Variables to Satisfaction

Customer trust is an important coordination that supports a company's performance in competition in the marketing environment and can contribute to relationship loyalty (Alamsyah, 2022). Customer trust in a product or service usually arises because customers judge the quality of the product based on what they see, understand, or feel, so it is important for the company to build customer trust in the product or service it offers so that the level of customer trust in the company is higher and customer satisfaction is created (Arikunto, 2012).

Customer satisfaction is a feeling of happiness or disappointment that arises from comparing perceived performance with expectations (Nurdiniawti, 2020). The relationship between trust and satisfaction of participants is whether customer expectations are estimated or customer trusts about what they will receive if they buy or consume a product, either goods or services, and the performance or results felt are the customers' perceptions of what they receive after consuming the product they buy. Thus, the following hypothesis was proposed:

H7   : Trust affects the satisfaction of retired Taspen participants in the Tanjungpinang City area.

2.6.8 The Relationship of Service Quality Variables to Satisfaction Through Trust

According to Parasuraman et al. (1985), service quality is a level of service that can meet or exceed consumer expectations, while consumer loyalty is the willingness of consumers to subscribe to a company by buying and using its products repeatedly and happily recommending it to friends.

Parasuraman et al. (1985) argue that customers must have trust in the company, customers will feel safe in making transactions with the company and transactions made will be guaranteed with certainty. Trust plays an important role in establishing long-term relationships to achieve customer loyalty, especially in terms of customer trust regarding the quality, reliability, and integrity of the services delivered by the company.

Quality of service is influenced by the satisfaction felt by the participants, and the satisfaction felt by the participants will result in an improvement in the quality of the company's services. Service quality, satisfaction, and trust are inseparable from a company, because a company engaged in services needs things that can build satisfaction and trust among participants.

Based on the results of research that has been conducted by Sirojudin et al. (2023) entitled The Influence of Service Quality and Value Felt by Participants on Participant Satisfaction with Trust as a Mediation Variable at PT Taspen (Persero) Yogyakarta Branch Office. He said that quality of service and perceived value had a positive effect on the trust and satisfaction of retired participants. Trust also mediated the influence of perceived value on satisfaction. However, trust could not mediate the influence of service quality on participant satisfaction. Thus, the following hypothesis was proposed:

H8   : The quality of service affects the satisfaction of Taspen pension participants in the Tanjungpinang City area, with trust as the intervening factor.

2.6.9 The Relationship of Variables of Management Information System Utilization to Satisfaction Through Trust

Adamu, Olayinka, and Usman (2024) management information systems are a collection of information system interactions tasked with collecting and managing data to provide useful information for all levels of management in company planning and control efforts. According to Kasmir (2018), customer satisfaction refers to a person's expectations or feelings about the purchase of goods or services. These expectations and realities determine customer satisfaction levels.

Participant satisfaction is created from the participant's happy experience in using the company's products and services, which arises from the comparison of expected performance and services. In the use of the management information system in the Taspen Authentication application, participants will evaluate the performance of the application and the quality of service based on their expectations and feel positive, negative, or neutral in response to the experience. Thus, the following hypothesis was proposed:

H9   : The use of management information systems has an effect on the satisfaction of Taspen retirement participants in the Tanjungpinang City area, with trust as an intervention.

2.6.10 The Relationship of Communication Variables to Satisfaction Through Trust

According to Muhammed, Salahudeen, and Zubairu (2021), communication can be effective if the message is received and understood as intended by the sender of the message, the message is followed up with an action by the recipient, and there are no obstacles to it. Trust exists when a group believes

in the trustworthiness and integrity of its partners. Trust is the expectation held by an individual that a person's words are reliable.

Trusted groups need to have high integrity and be trustworthy, which are associated with qualities that are consistent, competent, honest, fair, responsible, helpful, and kind. Trust is a number of specific Trusts about the integrity, honesty of the trusted party and the ability to keep promises (Maharani, Yahya, Putra, & Pramono, 2023).

Based on the results of Kurniasih and Elizabeth (2021), the path coefficient and significance of communication's influence on trust as an intervening variable can be said to mediate (act as an intervening variable). The mediation nature of trust is partial because of the large indirect influence of communication on trust. Thus, the following hypothesis was proposed:
H10 : Communication affects the satisfaction of Taspen retirement participants in the Tanjungpinang City area with trust as an intervening

2.7 Conceptual Framework
The framework of thinking in this study is to use intervening variables, which theoretically affect the relationship between independent and dependent variables in an indirect relationship. It can also be interpreted that intervening variables can strengthen and weaken the relationships between variables.

The framework of this thinking includes the determination of Service Quality, Utilization of Management Information Systems, and Communication on the satisfaction of retired participants with trust as an intervening variable, and will be tested by validity tests and reality tests. Related to the variables to be studied and to make it easier for researchers and readers to understand the flow of thought in this research, the author proposes it in the form of the following images:
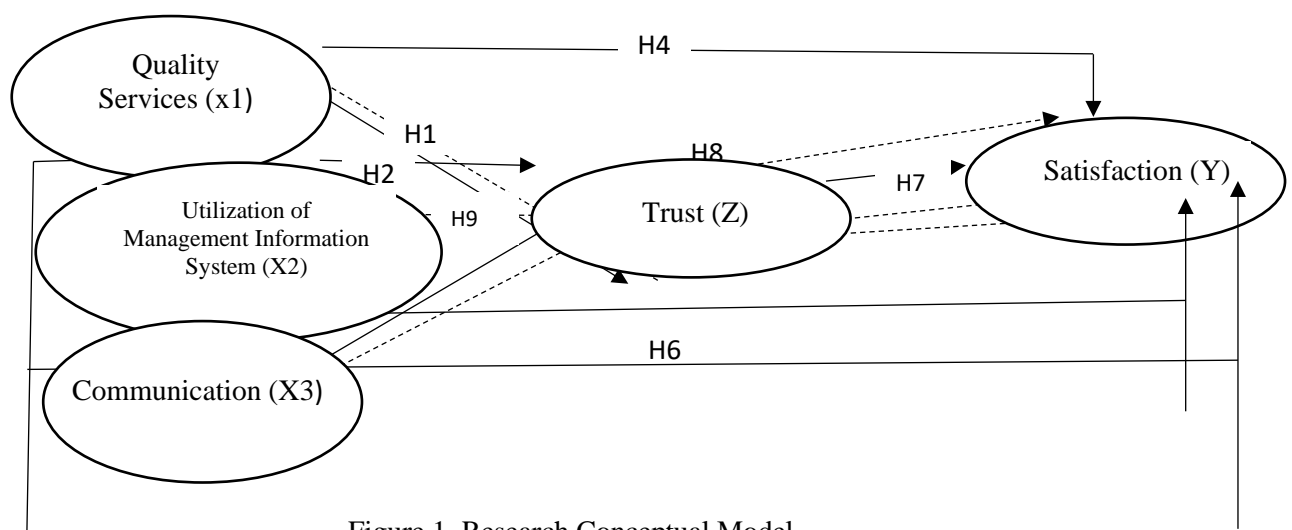

Figure 1. Research Conceptual Model

Information:
X1 : Independent Variable (Exogenous) Service Quality
X2 : Independent Variable (Exogenous) Utilization of Management Information System
X3 : Independent Variable (Exogenous) Communication
Y : bound variable (endogenous) Satisfaction
Z : the intervening variable Trust

3. Research Methodology

3.1 Data Collection Methods

Data collection techniques are carried out to obtain data and information needed to support the needs of this research, which requires a large amount of data, both from inside and outside the company. To obtain data and information in this study, the author collected data with questionnaires(questionnaires) from Taspen retirement participants in the Tanjungpinang City area, so the population amounted to 5,370 retired participants. An overview and the number of respondents to Taspen retirement participants in the Tanjungpinang City area can be seen in Table 1.

Table 1. Respondent Distribution

No	Gender	Number of Respondents	Percentage
1	Male	71	47%
2	Female	79	53%
Sum		150	100%
1	< 45 years	26	17%
2	46 – 60 years old	102	68%
3	>61 years	22	15%
Sum		150	100%
1	Self-Retirement	77	51%
2	Widow/Widower Pension	55	37%
3	Orphan Retirement	15	10%
4	Parental Pension	3	2%
Sum		150	100%

3.2 Variable Definition

The following is the operational definition of variable

Table 2. Variable Definition

Variable	Indicators	Statement Grains	Scale
Satisfaction Tjiptono (2005)	Overall Customer Satisfaction Knowledge Customer Satisfaction Dimension Confirmation of expectations Interest Repurchase Attitude Willingness to Recommend Customer Dissatisfaction	1,2 3,4 5,6 7 8 9,10	Likert
Total		**10**	
Variable	Indicators	Statement Grains	Scale
Trust Mayer et al. (1995)	Integrity Goodness Competence	1,2,3,4 5,6,7,8 9,10,11,12	Likert
Total		**12**	
Variable	Indicators	Statement Grains	Scale
Service Parasuraman et al. (1985)	Existence Reliability Responsiveness Guarantee Empathy	1,2 3,4 5,6 7,8 9,10	Likert
Total		**10**	

Variable	Indicators	Statement Grains	Scale
Utilization of Management Information System White (1984)	Information Humans as information processors System concept Information and management concepts Decision-making concept Value information	1 2 3 4 5 6	Likert
Total		**6**	
Variable	**Indicators**	**Statement Grains**	**Scale**
Communication Sutardi (2016)	Understanding Pleasure Influence on attitude Improved relationships Action	1,2,3 4,5 6,7 8,9 10,11	Likert
Total		**11**	

4. Result and Discussion

4.1 Measurement Model Analysis (outer model)

4.1.1 Convergent Validity

Convergent validity measures the magnitude of the correlation between the constructs and latent variables. Convergence validity testing was observed from the *loading factor* for each construction indicator. A loading *factor* value of > 0.7 is an ideal value, indicates that the indicator is valid for measuring the constructed construction. In empirical research, *a loading factor* value of > 0.5 is still accepted. Some experts accepted a value of 0.4. This value shows that the construction presentation can explain variations in the indicator (Adipurnomo, 2012).
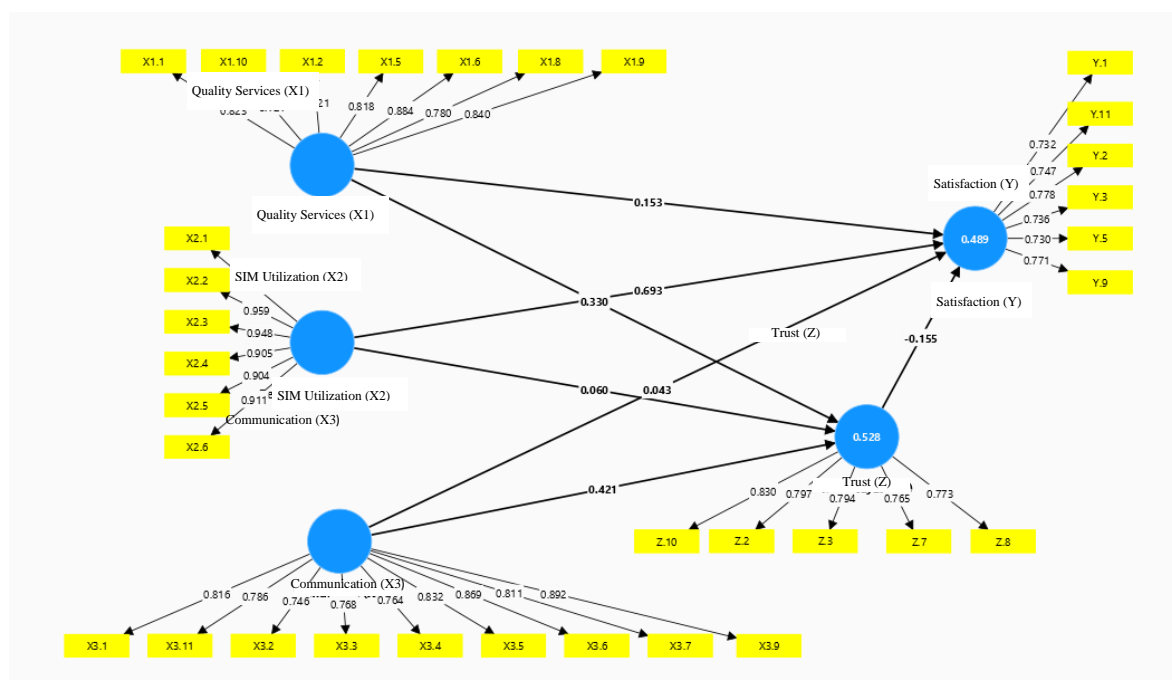
Figure 2. Outer Loading 1

Figure 3. Outer Loading 2

Source: Primary data, processed with PLS, 2024

Table 3. Convergent Validity Test

	Outer loadings
X1.1 <- Quality of Service (X1)	0,823
X1.10 <- Quality of Service (X1)	0,721
X1.2 <- Quality of Service (X1)	0,821
X1.5 <- Quality of Service (X1)	0,818
X1.6 <- Quality of Service (X1)	0,884
X1.8 <- Quality of Service (X1)	0,780
X1.9 <- Quality of Service (X1)	0,840
X2.1 <- SIM Utilization (X2)	0,855
X2.2 <- SIM Utilization (X2)	0,959
X2.3 <- SIM Utilization (X2)	0,948
X2.4 <- SIM Utilization (X2)	0,905
X2.5 <- SIM Utilization (X2)	0,904
X2.6 <- SIM Utilization (X2)	0,911
X3.1 <- Communication (X3)	0,816
X3.11 <- Communication (X3)	0,786
X3.2 <- Communication (X3)	0,746
X3.3 <- Communication (X3)	0,768
X3.4 <- Communication (X3)	0,764
X3.5 <- Communication (X3)	0,832
X3.6 <- Communication (X3)	0,869
X3.7 <- Communication (X3)	0,811
X3.9 <- Communication (X3)	0,892
Y.1 <- Satisfaction (Y)	0,732
Y.11 <- Satisfaction (Y)	0,747
Y.2 <- Satisfaction (Y)	0,778
Y.3 <- Satisfaction (Y)	0,736
Y.5 <- Satisfaction (Y)	0,730
Y.9 <- Satisfaction (Y)	0,771
Z.10 <- Trust (Z)	0,830
Z.2 <- Trust (Z)	0,797
Z.3 <- Trust (Z)	0,794
Z.7 <- Trust (Z)	0,765
Z.8 <- Trust (Z)	0,773

Source: Primary data, processed with PLS, 2024

1. Based on the above table on the Service Quality variable (X1), seven statements declared *convergent validity* as latent variables.
2. Based on the above table on the variables of Management Information System utilization (X2), six statements declared *convergent validity* as latent variables.
3. Based on the above table on the communication variable (X3), where there are nine statements, *convergent validity* was declared as a latent variable.

4. Based on the table above on the confidence variable (Z), five statements declared *convergent validity* as latent variables.
5. Based on the above table on the satisfaction variable (Y), where there are six statements, *convergent validity* is declared as a latent variable.

4.1.2 Validity of Discrimination

Discriminatory validity was conducted to ensure that each concept of each latent model was different from the other variables. The validity of discrimination from reflective models is evaluated through *cross-loading*, and the AVE value is compared with the square of the correlation between the constructs. Another measure of the validity of discrimination is that the root value of *Average Variance Extracted* (AVE) > 0.05 means that it must be higher than the correlation between the construct and other constructs, or the AVE value must be higher than the square of the correlation between the constructs (Maharani et al., 2023). The table below shows the validity of discrimination from the research model by examining *cross-loading*.

Table 4. Validity of Discrimination

	(Z)	(Y)	(X3)	(X1)	(X2)
Trust (Z)					
Satisfaction (Y)	0,197				
Communication (X3)	0,763	0,188			
Quality of Service (X1)	0,765	0,168	0,880		
SIM Utilization (X2)	0,163	0,730	0,147	0,099	

Source: Primary data, processed with PLS, 2024

Based on the above table, the results of the correlations between the variables are valid.
Internal Consistency Analysis

Internal consistency analysis is a form of reliability used to assess the consistency of results across items on the same test. Internal consistency testing uses a composite reliability value, with the criterion that a variable is said to be reliable if the composite reliability value is > 0.600 (Hair, Hult, Ringle, & Sarstedt, 2014).

Table 5. Internal Consistency Analysis

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)	(X2)
Trust (Z)	0,852	0,858	0,894	0,628	
Satisfaction (Y)	0,845	0,862	0,885	0,561	
Communication (X3)	0,935	0,941	0,945	0,657	
Quality of Service (X1)	0,914	0,918	0,932	0,662	
SIM Utilization (X2)	0,960	0,964	0,968	0,836	

Source: Primary data, processed with PLS, 2024
Based on the internal consistency analysis data in the table, the results are reliable.

4.2 Structural Model Analysis (inner model)

This test is to determine the path coefficient of the structural model, the purpose of which is to test the significance of all relationships or hypothesis testing. This test consists of three stages: collinearity testing, direct influence hypothesis testing, and indirect influence testing.

4.2.1 Testing the significance of the structural model path coefficient (Structural Model Path Coeffisient)

In this test, there are two stages, namely testing the direct influence hypothesis and testing the indirect influence hypothesis. Testing the significance of the structural model *path coefficient (structural model path coefficient).* This test determines the path coefficients of a structural model, the purpose of which is to test the significance of all relationships or hypotheses.

4.2.2 Direct Effect Testing

Testing the direct influence hypothesis aims to prove the hypotheses – hypotheses of the influence of one variable on other variables directly (without intermediaries). If the probability value *of the P-value is < Alpha* (0.05), Ho is rejected (the influence of the variable with other variables is significant). If the probability value *of the P-value is > Alpha* (0.05), then Ho is accepted (the influence of one variable with another variable is insignificant).

Table 6. Direct Influence

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Kepercayaan (Z) -> Kepuasan (Y)	-0,155	-0,151	0,082	1,882	0,031
Komunikasi (X3) -> Kepercayaan (Z)	0,421	0,429	0,082	5,130	0,000
Komunikasi (X3) -> Kepuasan (Y)	0,043	0,023	0,097	0,450	0,327
Kualitas Pelayanan (X1) -> Kepercayaan (Z)	0,330	0,339	0,104	3,183	0,001
Kualitas Pelayanan (X1) -> Kepuasan (Y)	0,153	0,168	0,099	1,540	0,063
Pemanfaatan SIM (X2) -> Kepercayaan (Z)	0,060	0,050	0,048	1,244	0,108
Pemanfaatan SIM (X2) -> Kepuasan (Y)	0,693	0,701	0,040	17,324	0,000

Source: Primary data, processed with PLS, 2024

1. The direct influence of X1 on Z has a coefficient of 3.183 (positive); thus, an increase in the value of variable X1 will be followed by an increase in variable Z. The influence of X1 on Z has *a P-value* of 0.001 < 0.05, so it is stated that the influence between X1 and Z is significant.
2. The direct influence of X1 on Y has a coefficient of 1.540 (positive), followed by an increase in the value of the X1 variable and an increase in the Y variable >.
3. The direct influence of variable X2 on Z has a coefficient of 1.244 (positive), and an increase in the value of variable X2 is followed by an increase in variable Z. The influence of X2 on Z has *a P-value* of 0.108 > 0.05, indicating that the influence of X2 on Z is insignificant.
4. The direct influence of variable X2 on Y has a coefficient of 17.324 (positive); thus, an increase in the value of variable X2 will be followed by an increase in variable Y. The influence of X2 on Y has *a P-value* of 0.000 < 0.05, so it is stated that the influence of X2 on Y is significant.
5. The direct influence of variable X3 on Z has a path efficiency of 5.130 (positive), and an increase in the value of X3 is followed by an increase in the Z variable. The influence of the X3 variable on Z has a *P-Value* of 0.000 < 0.05; therefore, it is stated that the influence between X3 and Z is significant.
6. The direct influence of variable X3 on Y has a coefficient of 0.450 (positive); thus, an increase in the value of variable X3 will be followed by an increase in variable Y. The influence of variable X3 on Y has *a P-value* of 0.327 > 0.05; therefore, it is stated that the influence between X3 and Y is insignificant.

7. The direct influence of the Z variable on Y has a path coefficient of 1.882 (positive); then, an increase in the value of the Z variable will be followed by an increase in the Y variable. The influence of the Z variable on Y has a *P-value* of 0.031 < 0.05; therefore, it is stated that the influence of Z on Y is significant.

4.2.3 Indirect Effect Testing
Testing the indirect influence hypothesis assumes that if the value of the indirect influence coefficient is greater than the direct influence coefficient, then the intervening variable mediates the relationship between one variable and another. On the other hand, if the value of the indirect influence coefficient < the direct influence coefficient, then the intervening variable does not mediate the relationship between one variable and another variable

Table 7. Indirect Influence

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Communication (X3) -> Trust (Z) -> Satisfaction (Y)	-0,065	-0,066	0,044	1,501	0,068
Service Quality (X1) -> Trust (Z) -> Satisfaction (Y)	-0,051	-0,047	0,026	1,978	0,025
SIM Utilization (X2) -> Trust (Z) -> Satisfaction (Y)	-0,009	-0,009	0,010	0,887	0,188

Source: Primary data, processed with PLS, 2024

1. Based on the above table, the value of the indirect influence coefficient of variable X1 on Y is 1.978 > 1.540 (direct influence on Y). with a *P-value* of 0.025; thus, it can be stated that Z mediates the influence between X1 and Y.
2. Furthermore, based on the table above, the value of the indirect influence coefficient of variable X2 on Y was 0.887 < 17.324 (direct influence on Y). with a *p-value* of 0.188, indicating that Z does not mediate the influence between X2 and Y.
3. Based on the table above, the value of the indirect influence coefficient of variable X3 on Y was 1.501 > 0.450 (direct influence on Y). with a *p-value* of 0.068. Thus, it can be stated that Z does not mediate the influence between X3 and Y.

5. Conclusion
5.1 Conclusion
The results of processing all SMART PLS variables can be summarized as follows:
1. Service quality (X1) has a positive influence on the satisfaction (Y) of Taspen retirement participants in the Tanjungpinang city area. This effect is positive and insignificant. This means that the quality of the service is improving. In this study, quality of service was not correlated with retired participants. Based on the results of the research conducted, Hypothesis 1 was not accepted.
2. The use of management information systems (X2) had a positive influence on the satisfaction (Y) of Taspen retirement participants in the Tanjungpinang city area. This effect is positive and significant. This means that if the use of the management information system improves, the satisfaction of the retired participants is good. In this study, the correlation between the use of management information systems and satisfaction of retirement participants was included in the high-correlation category. Based on the results of the research that has been carried out, hypothesis 2 is accepted.
3. Communication (X3) has a positive influence on the satisfaction (Y) of Taspen retired participants in the Tanjungpinang city area. This effect is positive and insignificant. Communication does not guarantee the growth of the satisfaction of retirement participants. In this study, the correlation between communication and satisfaction among retired participants was included in the low-correlation category. Based on the results of the research conducted, Hypothesis 3 was not accepted.

4. The quality of service (X1) has a positive influence on the trust (Z) of Taspen retired participants in the Tanjungpinang city area. This effect is positive and significant. This means that if the quality of service is improving, the trust of retired participants is good. In this study, the correlation between service quality and trust of retired participants was included in the high correlation category. Based on the results of the research that has been carried out, hypothesis 4 is accepted.
5. The use of management information systems (X2) had a positive influence on the trust (Z) of Taspen retirement participants in the Tanjungpinang city area. This effect is positive and insignificant. In this study, the correlation between the use of management information systems and trust of retirees is included in the low-correlation category. Based on the results of the research conducted, Hypothesis 5 was not accepted.
6. Communication (X3) has a positive influence on the trust (Z) of Taspen retired participants in the Tanjungpinang city area. This influence is positive and significant. This means that if communication improves, the trust of participants will be good. In this study, the correlation between communication and trust of retired participants was included in the high correlation category. Based on the results of the research that has been carried out, hypothesis 6 is accepted.
7. Trust (Z) has a positive influence on the satisfaction (Y) of Taspen retirement participants in the Tanjungpinang City area. This influence is positive and significant. This means that if trust improves, the satisfaction of the retired participants is good. In this study, the correlation between trust and satisfaction of retired participants was included in the high-correlation category. Based on the results of the research that has been carried out, hypothesis 7 is accepted.
8. Service quality (X1) had a positive influence on the satisfaction (Z) of Taspen retirement participants in the Tanjungpinang city area, with trust (Y) as the mediating variable. This effect is positive and significant. Based on the results of the mediation test, there was an intervening effect of the variable of confidence of retired participants in the relationship between the variable of service quality and satisfaction of retired participants. This is proven through a mediation test, in which all four stages of regression show that everything is significant. Therefore, the mediation variable was considered to be a full mediation variable. Based on the results of the research that has been carried out, hypothesis 8 is accepted.
9. The use of the management information system (X2) does not have a positive influence on the satisfaction (Y) of Taspen pensioners in the Tanjungpinang city area, with trust (Z) as a mediating variable. This effect is positive and insignificant. Based on the results of the mediation test, there was no intervening effect of the variable of confidence of retirees in the relationship between the variables of the use of management information systems and the satisfaction of retirees. Therefore, based on the results of the research conducted, Hypothesis 9 was not accepted.
10. Communication (X3) had a positive influence on the satisfaction (Z) of Taspen retirement participants in the Tanjungpinang City area, with trust (Y) as the mediating variable. This effect is positive and insignificant. Based on the results of the mediation test, there was no intervening effect of the confidence variable of retired participants in the relationship between the communication variable and the satisfaction of retired participants.

5.2 Suggestion

In connection with the things that the author has conveyed above, the author will provide some suggestions that are expected to be useful for the Taspen KC Tanjungpinang office to support the problem and achieve the following goals:

1. For Taspen KC Tanjungpinang
   a. Quality of Service
      In an effort to improve the variable of service quality, it can be prioritized to improve the speed of Taspen KC Tanjungpinang employees in responding to complaints from retirement participants via *WhatsApp* because sometimes retirement participants are constrained to come directly to the office, either because of the distance from home, so they can only rely on *WhatsApp* or via phone to ask questions.
   b. Utilization of Information Systems
      Taspen should pay more attention to the Taspen Authentication application system, considering the number of retired participants who operate the application, so that a system upgrade is needed

so that when retired participants use the application, there is no disruption, especially at the beginning of the month.

c. Communication

Communication skills in Taspen KC Tanjungpinang employees must be maintained by observing the number of retired participants who are satisfied with communicating with employees and do not experience any difficulties in understanding the directions or explanations of Taspen KC Tanjungpinang employees.

d. Trust

For Taspen KC Tanjungpinang to further improve the quality of the Taspen Authentication Application to increase participants' confidence in using the application and realize the purpose of making the application, namely as an alternative authentication process for retired participants so that there is no need to authenticate at the office or payment partner.

e. Satisfaction

It is hoped that Taspen KC Tanjungpinang will improve the provision of services through *WhatsApp*, because it is one of the values to increase the satisfaction of retired participants.

2. For the next researcher

For future research, it would be better to examine other variables besides service quality, the use of management information systems, and communication to satisfaction through the trust that has been researched in this study. This is because there are still several other factors that can affect the fertility of retired participants, and the ability to measure is better.

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