

**THE EFFECT OF OMNICHANNEL PERCEIVED VALUE AND
INTEGRATION TOWARD CUSTOMER SATISFACTION:
TECHNOLOGY READINESS AS MODERATOR****Daniel Clarence Marthin¹, Triana Rahajeng Hadiprawoto²**¹Universitas Indonesia, daniel.clarence@ui.ac.id²Universitas Indonesia, triana.rh@ui.ac.id

ABSTRACT

In recent years, companies within various industries made attempts to transform themselves into omnichannel organizations. In doing so, most companies focus on providing a seamless customer experience which plays a major role in an omnichannel strategy. Previous research has shown that seamless customer experience could affect customer omnichannel journey positively. Furthermore, it builds a strong relationship between customer omnichannel journey and customer behavior. Another research has shown that omnichannel integration quality and omnichannel perceived value could have a positive effect on customer satisfaction. However, there is a lack of omnichannel research specifically regarding the characteristics of customers who engage in an omnichannel environment considering the digitalization era and how customers might navigate interaction with technology differently. Therefore, this paper aims to find out whether customer characteristics, such as technology readiness, are able to moderate the effect between omnichannel perceived value and customer satisfaction. This study uses Partial Least Square to analyze the data from a sample of 200 respondents who have used the omnichannel platform of a particular hospital in Indonesia, specifically a combination of online channels (e.g., website, third party app, hospital mobile app) and an offline channel (visiting hospital directly). The respondents have given a questionnaire consisting of 40 items and a 5-point Likert to examine each item. The result is that perceived value has a positive impact on customer satisfaction as well as integration quality to customer satisfaction. There is also a positive impact on customer satisfaction to customer loyalty.

Keywords: Omnichannel, Customer satisfaction, Technology readiness

1. Introduction

In the era of globalization that is increasingly advanced and developing, it provides many conveniences for humans in carrying out activities both in daily life and in the world of work. Technological progress when viewed from the positive side has helped humans in the aspects of technology, economy, transportation, politics, and health. The Internet, in this case, represents a technology that plays a very important role in human life.

It is undeniable that the number of internet users is increasing every year. Information obtained from the Director General of Aptika, Samuel A. Pangerapan said that there was an increase in internet users in Indonesia where previously in 2020 it was 175.4 million, increasing to 202.6 million in 2021 (www.kominfo.go.id) which made Indonesia crowned is in the 4th position as the country with the most internet users in the world. The data above is supported by the statistical results described in the databox in Figure 1.

Figure 1. shows the development trend of internet users in Indonesia, which is growing every year. According to data compiled by Databoks, in early 2022, the number of internet users in Indonesia reached 204.7 million users. Today, with the internet, one can buy products quickly, search for the latest news, make appointments, and even have virtual health consultations.

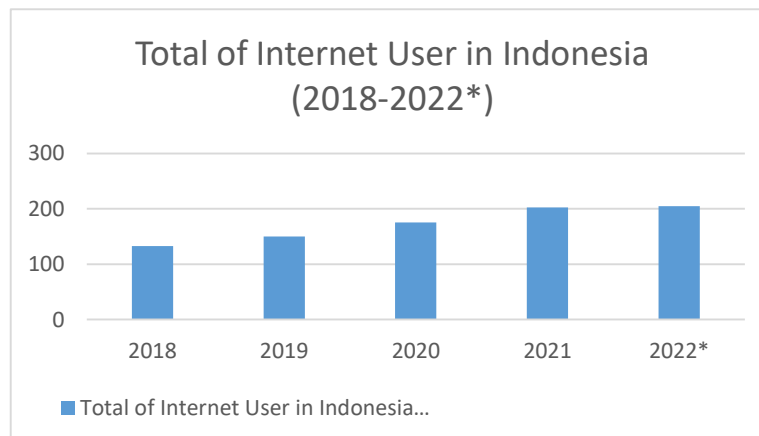


Figure 1. Total of Internet Users in Indonesia (2018-2022)
Source: Katadata Insight Center (KIC)

As a result of the COVID-19 pandemic, the growth of the internet is increasing, specifically in health services or what is called telemedicine. According to data from the Katadata Insight Center survey on February 28-March 7, 2022, as many as 44.1% telemedicine users are new service users. Telemedicine is a remote health service that allows users to make consultation appointments offline and online, buy drugs and register for check-ups, swabs, or PCR without having to come to the hospital first. Talking about satisfaction in the world of health, telemedicine must be designed as attractive and as easy as possible for users, either through websites or applications. Thus, the satisfaction obtained by users is more or less the same when they used to go to the hospital before the pandemic and now seek treatment using telemedicine through a website or application or what can be called an omnichannel.

Omnichannel is an evolution of multichannel where the function of omnichannel is to integrate every channel (channel) owned by an organization by providing a consistent and seamless experience (seamless) for customers (Verhoef et al., 2015). Therefore, it is very important to provide a consistent experience whether customers use the channel online (website and application) or offline (coming directly to the hospital). This study focuses on hospitals that have telemedicine services, namely Siloam Hospital.

In achieving continuous and perfect synergy in each existing channel, there are two (2) basic foundations that must be owned by the organization, namely integration quality (Shen et al., 2018) and perceived value (Banerjee, 2014). Previous research conducted by Hamouda (2019) indicated that there was a close relationship between integration quality (IQ) and perceived value (PV) on satisfaction. Then, the research conducted by Mencarelli and Lombart (2017) showed that consumer characteristics as a variable could moderate the relationship between PV and satisfaction. Then according to Parasuraman and Colby (2015), the use of technology can not be separated from users' readiness. There are four characteristics in seeing their readiness to use technology: optimism, innovativeness, discomfort, and insecurity. Therefore, researchers want the influence between IQ and PV on satisfaction and loyalty with technology readiness as a moderator variable.

2. Literature Review

2.1 Omnichannel

Two strategies can be used to increase customer loyalty to a brand, namely: multichannel and omnichannel (Danaher et al., 2003; Venkatesan et al., 2007). According to Beck and Rygl (2015), a multichannel strategy focuses on attracting customers to shop for products or services offered by the company by providing as many channels as possible. Different from multichannel, omnichannel does not only focus on multiplying the channels owned but also on integrating channels owned so that it can be coordinated and provide a seamless experience for customers (Levy et al., 2013). So it can be concluded that omnichannel is a refinement of the form of a multichannel strategy.

2.2 Omnichannel Perceived Value

Historically, perceived value has different meanings based on the views of experts with different perspective backgrounds. Bishop (1984) sees perceived value from a monetary point of view and interprets it as the difference between the maximum level of price tolerance that a person is willing to pay for goods or services

and the original price of the goods or services. Sheth et al. (1991) look at perceived value from a psychological point of view and define it as a value that can increase the social value of an item or service owned by the item or service compared to the specifications of the item or service. Meanwhile, Zeithaml (1988) sees perceived value as an evaluation given to goods or services for what is received and what is given. The perceived value consists of three dimensions such as functional value, hedonic value, and social value; three are a tool for consumers to measure the value of the product before deciding to buy.

2.3 Omnichannel Integration Quality

Sousa and Voss (2006) explain that integration quality is one of the foundations of a multichannel strategy, and integration quality is described as a company's ability where the company can provide a seamless service (seamless experience) for customers regardless of the number of channels used by the customer. Saghiri et al. (2017) describe omnichannel integration quality from three perspectives, namely: integration that occurs between existing channels, where customers get convenience when switching from one channel to another without any confusion or inconsistency of the information obtained from each channel; integration that occurs between each channel type, where this perspective aims to harmonize the channel types used by the company whether online, offline or mobile channels (applications), so that each channel has the same operating system as other channels; and integration between channel agents, where information about goods or services of a brand can be provided without any difference regardless of which channel agent is used by the customer.

2.4 Satisfaction

Based on the expectancy-disconfirmation paradigm (Oliver, 1980), customer satisfaction is defined as a perception arising from the performance generated by the quality of goods or services (Torres and Kline, 2006). According to Yi (1990), customer satisfaction is a customer behavior that shows his preference for the interactions produced through these goods or services.

Montoya-Weiss et al. (2003) distinguish customer satisfaction into two concepts, namely: satisfaction with a specific transaction, where this satisfaction occurs as a result of customer assessment of a particular transaction experience (Garbarino and Johnson, 1999); and cumulative satisfaction, where this satisfaction arises from a comprehensive customer assessment starting from the purchase transaction to the results of using goods or services (Garbarino and Johnson, 1999). Meanwhile, Giese and Cote (2000) state that when talking about customer satisfaction, there are three components of customer satisfaction, which can be identified, namely: (1) customer satisfaction is a cognitive or emotional response; (2) customer satisfaction is a response from experience in buying goods or services, the result of the performance of goods or services, or the expected expectations of an item or service; and (3) responses that occur in a certain period

Based on the results of the study proposed by Fornell et al. (1996) and Cronin et al. (2000) stated that several factors have an influence on customer satisfaction, one of which is PV. The findings by Carlson et al. (2015) and Hamouda (2019) show a positive influence on the relationship between PV and satisfaction. Therefore, the researcher proposes the following hypothesis.

H1. Omnichannel perceived value has a positive effect on customer satisfaction.

Several previous studies have shown that there is a positive relationship between PV and satisfaction (Cronin et al., 2000; Rust and Oliver, 1994; Hamouda, 2019). In a study conducted by Seck and Philippe (2013), satisfaction can be formed through user experience in using several available channels. Krishnan et al. (1999) also touched on the context of multichannel; various types of channels are used to measure the level of customer satisfaction. Referring to several previous studies. Researchers change multichannel to omnichannel, where omnichannel is an improvement from multichannel, and propose the following hypothesis.

H2. Omnichannel integration quality has a positive effect on customer satisfaction.

2.5 Technology Readiness

Technology readiness is defined as a person's mental attitude to accept or reject when faced with new technology (Parasuraan, 2000). There are four dimensions in measuring technology readiness (Parasuman and Colby, 2015), including:

- Optimism. People who have a positive view of technology and believe that technology can increase flexibility and efficiency in carrying out daily activities
- Innovativeness. Groups of people who have a tendency to try new technologies. Usually, this group tries to be the first to use the technology.
- Discomfort. People who think that technology is difficult to control in their daily life.
- Insecurity. Groups of people who do not believe and are also skeptical of technological developments. Where technology has a lot of bad effects.

The results of the study from Chang and Chen's (2021) research show that technology readiness has a stronger influence on the relationship between perceived ease to use and shopping desires. Based on the statement by Rosenberg and Hovland (1960), human behavior is mentally and emotionally divided into three categories, namely cognition, affection, and conation. Where these three components were adapted into the Technology Acceptance Model (Cronin and Taylor, 1992) and the Unified Theory of Acceptance and Use of Technology (Venkatesh and Brown, 2001). There are three motives for using technology, namely functional, hedonic and social. Functional motives tend to talk about efficiency, ease of use, and time-saving (Kim et al., 2013). From the explanation above, it can be concluded that perceived value cannot be separated from the relationship that arises due to the motive for using technology, and the researcher proposes the following hypothesis.

H3. Moderation of technology readiness provides a stronger relationship through perceived value to customer satisfaction.

2.6 Loyalty

Customer loyalty is the result of customer satisfaction with goods or services (Oliver, 2014; Westlund et al., 2001; Kristense et al., 2001), which has an important role in determining the company's success (Senic and Marinkovic, 2014). Jacoby and Kyner (1973), describe loyalty as a subjective thing that arises from the customer's behavioral response to his preference for goods or services. According to the literature written by Hallowell (1996), satisfaction has a strong impact on customer loyalty. However, a counter-statement was put forward by Mittal and Lassar (1998), that satisfied customers can look at competitors' offerings of goods or services to compare the benefits of these goods or services, and dissatisfied customers are likely to not continue to buy goods or services. On the pretext that there are no alternative products or services available. In the context of multichannel, Wallace et al. (2004) describe a positive influence on the relationship between customer satisfaction and loyalty. Therefore, the researcher proposes the following hypothesis.

H4. Customer satisfaction has a positive effect on the loyalty

Figure 2 illustrates the conceptual model from these hypotheses.

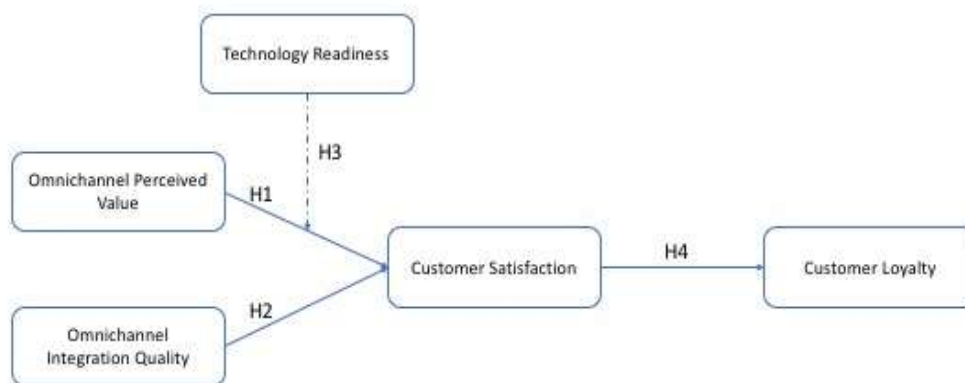


Figure 2. Conceptual model

3. Research Method

3.1 Sample and Design

To collect data, questionnaires were spread out using a google form consisting of 27 items and a 5-point Likert to examine each item. Respondents were chosen based on their experience when using channels in the healthcare sector, and also only respondents who have used at least two channels were invited to fill out the questionnaire form in order to identify how many channels the respondents used; the following question is given: "How many channels have you used at Siloam Hospital?" Before the data collection, a pretest questionnaire was given to 35 respondents to examine the value of the validity and reliability test. After the pretest data were collected, some indicators which had low result values were improved. The data collection lasted three months, from January and ended in April 2022. It consisted of 268 respondents. The Descriptive analysis of this research is shown in Table 1.

Table 1. Respondents profile

Sample (N=268)		
	Frequency	Percentage
Age group		
18-20	12	4,48%
21-30	89	33,21%
31-40	136	50,75%
41+	31	11,57%
Gender		
Male	158	58,96%
Female	110	41,04%
Education level		
Senior high school	36	13,43%
Bachelor degree	174	64,93%
Master degree	58	21,64%
Occupation		
Self-employee	37	13,81%
Government officer	85	31,72%
Employee	122	45,52%
Student	24	8,96%

3.2 Measurement

Measurement scales of this research were adopted and combined from several previous research. To fit with the context of omnichannel in the healthcare sector, the items were given slight adaptations. The measurement scale for PV and IQ was adopted from Kabadayi et al. (2017). Measurements for satisfaction were taken by Cronin et al. (2000), and for loyalty, the question was taken from Zeithaml et al. (1996). Technology readiness as a moderator was adapted from Parasuraman and Colby (2015). All of the questionnaire statements were using a five-point Likert scale with a range of 1 as strongly disagree to 5 as strongly agree.

4. Results and Discussion

4.1 Measurement model

The first step before the executed main test, the pretest, has been done to check the validity and reliability of the measurement model. To check validity and reliability, SPSS 26 was running to identify each construct's factor loading and its Kaiser-Meyer-Olkin and measure reliability by calculating the Cronbach alpha value. All of the indicators were shown with KMO value $> 0,5$, loading factor $0,5$, and Cronbach alpha $> 0,6$. Thus, the indicators could be shown as valid and reliable unless indicator INS1 due to the value is $< 0,5$ (Maholtra and Dash, 2016). Thus, INS1 has been excluded from this research. The details are given in table 2.

The second step, SmartPLS 3.2.9, was used to run the data collected from 269 respondents to test the measurement model's reliability, convergent validity, and discriminant validity. To check reliability, we used the composite reliability (CR) with the condition all the values must be greater than $0,7$ and Cronbach alpha must be greater than $0,6$ (Fronell and Larcker, 1981; Hussein, 2015). Furthermore, the value of average variance extracted (AVE) had to be bigger than $0,5$, so it was called to have a strong convergent validity (Fornell and Larcker, 1981). According to Hair et al. (2020), outer loading could be used to check the reliability of research which had to be greater than $0,5$. The details are shown in table 3.

Table 2. Validity and Reliability of pre-test

Construct	Item code	KMO	Loading factor	Cronbach alpha
Integration Quality	IQ1	0,779	0,851	0,855
	IQ2		0,818	
	IQ3		0,678	
	IQ4		0,750	
	IQ5		0,588	
Perceived Value	PV1	0,766	0,827	0,839
	PV2		0,930	
	PV3		0,634	
	PV4		0,632	
Technology Readiness Optimism	OP1	0,791	0,832	0,864
	OP2		0,899	
	OP3		0,735	
	OP4		0,679	
Innovative	INN1	0,740	0,833	0,817
	INN2		0,779	
	INN3		0,771	
	INN4		0,526	
Discomfort	DIS1	0,663	0,808	0,718
	DIS2		0,916	
	DIS3		0,858	
Insecure	INS1	0,700	0,373	0,771
	INS2		0,816	
	INS3		0,880	
	INS4		0,670	
Customer satisfaction	CS1	0,712	0,872	0,898
	CS2		0,966	
	CS3		0,769	
Customer loyalty	CL1	0,819	0,853	0,900
	CL2		0,747	
	CL3		0,911	
	CL4		0,761	
	CL5		0,829	

4.2 Structural Model

Hypotheses of this research were tested by using smartPLS 3.2.9 to identify value original sample and p-values with 5000 subsamples of bootstrapping. The hypotheses would be identified as supported when original sample had positive value and hypotheses would be called significant when value of p-value lower than 0,05 (Hair et al, 2020). According to table 4, The relationship between omnichannel perceived value and customer satisfaction is positive and significant ($0,000 < p\text{-value}; 0,05$); thus H1 was supported. There is also positive and significant relationship between customer satisfaction and customer loyalty ($0,000 < p\text{-value}; 0,05$) thus H3 was supported. Even though there is a positive relationship between omnichannel integration quality and customer satisfaction but it is not significant ($0,215 > p\text{-value}; 0,5$). Hence, H2 was supported. H3 was rejected due to the value is indicating as negative numeric.

5. Conclusion and Implications

5.1 Conclusion

The object of this study was to better understand the impact of omnichannel in the healthcare sector while seeing the role of technology readiness in increasing customer satisfaction. The investigation of this research focused on the healthcare industry to determine the relationship between omnichannel perceived value, omnichannel integration quality, customer satisfaction, customer loyalty, and technology readiness as a moderator variable between omnichannel perceived value and customer satisfaction. Previous research has shown a relationship between quality and perceived value in a multi-channel and omnichannel context, indicating that both variables had a positive effect to increase customer satisfaction (Zeitaml, 1988; Kabadayi et al., 2017; Hamouda, 2019). Yang et al . (2017) described the customers enjoying getting a comfortable feature

in every channel that they were using as well as they were enjoying obtaining identical information regardless of the channel that they used, which this study approves that the better-perceived value will grow the satisfaction of the customer. Furthermore, Hamouda (2019) emphasized that in the context of omnichannel, there is a positive and significant relationship between omnichannel perceived value and customer loyalty through customer satisfaction. This result was already provided in multi-channel (Carlson et al., 2015) and omnichannel with different sectors (Hamouda, 2019). Other studies had conducted to explain the relationship between perceived value and customer satisfaction and added people characteristics as a moderator variable. Mencarelli and Lombart (2017) showed a positive relationship between perceived value and customer satisfaction with people characteristics as a moderator. However, Chang and Chen (2021) indicated technology readiness as a moderator of perceived value and customer satisfaction had no positive effect, which is similar to the finding of this research.

Table 3. Measurement Model

Item Code	Composite reliability	Cronbach alpha	AVE	Outer Loading
IQ1	0,912	0,880	0,675	0,793
IQ2				0,865
IQ3				0,817
IQ4				0,837
IQ5				0,796
PV1	0,913	0,872	0,724	0,810
PV2				0,838
PV3				0,884
PV4				0,869
OP1	0,907	0,863	0,709	0,833
OP2				0,844
OP3				0,797
OP4				0,890
INN1	0,896	0,844	0,683	0,850
INN2				0,767
INN3				0,815
INN4				0,870
DIS1	0,871	0,778	0,693	0,809
DIS2				0,863
DIS3				0,824
INS2	0,878	0,792	0,705	0,827
INS3				0,810
INS4				0,881
CS1				0,818
CS2	0,866	0,768	0,684	0,796
CS3				0,864
CL1				0,743
CL2	0,925	0,898	0,711	0,830
CL3				0,903
CL4				0,851
CL5				0,881

5.2 Theoretical implications

This research objective is to give in-depth insight into omnichannel and also to find out whether people's characteristics could affect customer satisfaction; to the best of the author's knowledge, this research could probably be one of the first studies that test all relationships of omnichannel context in healthcare area by making customer as a point of view. Moreover, many studies have discussed omnichannel context related to a retail firm and its product, which the research of omnichannel related by service is rarely; therefore, this research attempts to give an insight from a service firm. Especially most of the studies related to omnichannel were focused on the firm point of view. It is important to understand customers' views when they are using channels of the healthcare sector by seeing, first of all, the perceived value of the customer itself and the quality of integration from all of the channels provided by the firm could affect customer satisfaction and loyalty.

Table 4. Structural Model Result

Hypotheses	Original Sample	P-Values	Result
H1: PV→CS	0,487	0,000	Supported
H2: IQ→CS	0,057	0,215	Supported
H3: Moderating effect PV→CS	-0,151	0,004	Not Supported
H4: CS→CL	0,225	0,000	Supported

5.3 Practical implications

From a practical side, this research could give healthcare sector firms (especially hospitals) a new view of customer needs and why technology readiness has no impact on the relationship between perceived value and customer satisfaction. The hospital managers or CEOs can use other approaches when technology readiness in Indonesia does not affect customer loyalty. However, it appears that the hospital has to develop the quality of their channel in the context of the integration channel, which gives better satisfaction to the customer. It is related to how a hospital updates its channel, whether offline or online such as website and mobile applications, in real-time and continuously. Furthermore, having a better perception by the customer of channels provided by the hospital also plays an important role.

5.4 Limitations and future research paths

There are some limitations that occur in this research and could be used for future research. First, this study was focused on a particular country and only aimed at omnichannel in the healthcare area. Moreover, the culture of each country could be done as further investigation into whether it would affect satisfaction with an omnichannel strategy. Lastly, this study used a cross-sectional method. It would probably be better to use the longitudinal method to collect the survey data to get the bigger picture of customer satisfaction.

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