



The Role of Omni-channel Integration in driving Customer Satisfaction and Loyalty in Indonesia E-commerce

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Abstract: The rapid growth in consumer expectations and the increasing demand for online shopping have necessitated the integration of distribution systems that can serve customers seamlessly across multiple channels. Despite its potential, implementing an effective omni-channel system presents various challenges, particularly in aligning operations with the values perceived by customers. Addressing this issue, the present study—titled “The Role of Omni-channel Integration in Driving Customer Satisfaction and Loyalty in Indonesia E-commerce”—seeks to contribute to the expanding literature on omni-channel strategies. Specifically, the study aims to empirically examine the relationships between omni-channel order fulfillment integration, integration quality, perceived omni-channel value, customer satisfaction, and customer loyalty. The data analysis uses the Structural Equation Modeling (SEM) method based on Partial Least Squares (PLS) to explore these relationships. The findings indicate a positive relationship between omni-channel integration and customer satisfaction, while the quality of omni-channel integration is also positively associated with customer loyalty.

Keywords: Omni-channel Integration Order Fulfillment, Omni-channel Integration Quality, Omni-channel Perceived Value, Customer Satisfaction, Customer Loyalty.

INTRODUCTION

The growth of internet users in Indonesia has been remarkable, with 88.1% of internet users engaging in e-commerce transactions (Katadata Databooks, 2021). It is no wonder that e-commerce in Indonesia has experienced rapid growth in recent years, with the e-commerce market value reaching USD 62 billion in 2023 (Statista, 2023). This growth is driven by various factors, including increased internet penetration, rising smartphone usage, and changes in consumer behaviour shifting towards online shopping. In this dynamic environment, e-commerce businesses increasingly adopt multi-channel strategies to expand their reach. They are transitioning to omnichannel strategies to provide customers seamless and consistent experiences across various channels (Verhoef et al., 2007). Omnichannel commerce integrates online and offline channels, allowing customers to interact with brands through various touch points such as websites, mobile apps, physical stores, and social media.

While omnichannel commerce has gained significant traction, its impact on customer satisfaction and loyalty is a crucial area of our research. Existing studies have primarily focused on individual components of omnichannel strategies, such as channel integration and service quality (Hamouda et al., 2019). However, the lack of a comprehensive examination of the combined effects of these factors on customer satisfaction and loyalty underscores the importance of our study in filling this gap in the literature.

Lee (2019) investigates the impact of omni-channel characteristics on customer satisfaction in the context of today's retailing in Korea. Sumrit & Sowijit (2023) investigate the omnichannel logistics in terms of assessing customer satisfaction for e-commerce retail businesses in Thailand. Hamouda et al. (2019) investigate the relationship between omni-channel integration quality, omni-channel perceived value, customer satisfaction and loyalty in the banking context in Tunisia. While prior research has explored the effects of omnichannel integration on customer satisfaction from the customer's perspective in various countries, this study aims to address a gap by examining the same relationship from the retailer's perspective, specifically focusing on Indonesian omnichannel users. Furthermore, it will investigate the subsequent impact of customer satisfaction on customer loyalty.

With the help of omnichannel, it is easier for online sellers to manage their online stores across multiple channels using just one platform (Verhoef et al., 2015; Saghiri et al., 2017). As our research indicates, which discusses omnichannel in the banking industry (Hamouda et al., 2019), we have researched omnichannel in the context of ecommerce. This research can contribute to businesses that use omnichannel, companies that build omnichannel solutions, and companies in the marketplace industry to help with the integration process.

This study offers a novel approach by amalgamating the variables of Omni-Channel Integrated Order Fulfillment, Integrated Transaction Information, Omni-Channel Integration Quality (Lee et al., 2019), and Omni-Channel Perceived Value in directly influencing customer satisfaction and loyalty. This departure from previous research, which often concentrated on one or two dimensions of omni-channel commerce, is expected to offer new insights.

Perceived value is a determinant of overall customer satisfaction (Fornell et al., 1996, Cronin et al., 2000). (Carlson et al., 2015) examine the effect of customer perceived value on online channel satisfaction and loyalty then reveal that a positive relationship exists between multi-channel PV and customer satisfaction. Hence, in line with the positive relationship between omnichannel banking perceived value and customer satisfaction provided by (Hamouda, 2019). (Hu et al., 2009) indicates perceived value can result in achieving high customer satisfaction, thus affecting the firm's corporate image, and ultimately leading to consumer retention. Thus, this study attempts to confirm the positive relationship between omnichannel perceived value and customer satisfaction.

H1: Omni-Channel Perceived Value gives a positive influence on Customer Satisfaction

Since retailers have placed the distribution system at the front line, the fulfillment process is linear in omnichannel (Lee, 2020). Order fulfillment service as perceived by the retailer to be a critical element driving retailer customer satisfaction (Stewart, 1995). When the order is placed on the promise of the retailer then it will give the customer a positive attitude (David R. Bell, 2014). So, the outcome of the process offered will greatly determine tender satisfaction. In this way, we assume that integrated order fulfillment will generate positive satisfaction. Thus, this study attempts to confirm the positive relationship between integrated order fulfillment and customer satisfaction.

H2: Integrated Order fulfilment gives a positive influence on Customer Satisfaction

Zhang et al. (2010) argue that information regarding pricing, promotion, delivery and return policies, assortments need to be provided consistently to consumers in order for omnichannel to be acknowledged and accepted by consumers. Wang et al. (2013) state that integration of information facilitates consistency in the service, which leads to increased trust of consumers. In the omnichannel system, retailers need to offer a variety of options for

discovering, buying, and returning products across the online and offline channels (Hübner et al., 2016). Providing various transaction-related services, managing transaction information, and better service will have a positive impact on customer satisfaction. Thus, this study hypothesizes as below.

H3: Integrated Transaction Information gives a positive influence on Customer Satisfaction

The integrated quality of channels has been considered as a key driver of customer satisfaction (Montoya-Weiss et al., 2003; Sousa & Voss, 2006). In fact, Seck and Philippe (2013) reveal that multi-channel customers, who use at least two channels, develop their perception of quality across all channels which will ultimately influence their overall satisfaction. (Alzaydi, 2023) High multi-channel integration quality will have an impact on customer satisfaction. Customer satisfaction in an omni-channel context would be greater as the perception of the quality of the channel's integration is high (Lazaris & Vrechopoulos 2014; Juaneda-Ayensa et al., 2016). Furthermore, (Hamouda, 2019) confirms the positive relationship between omni-channel IQ and customer satisfaction.

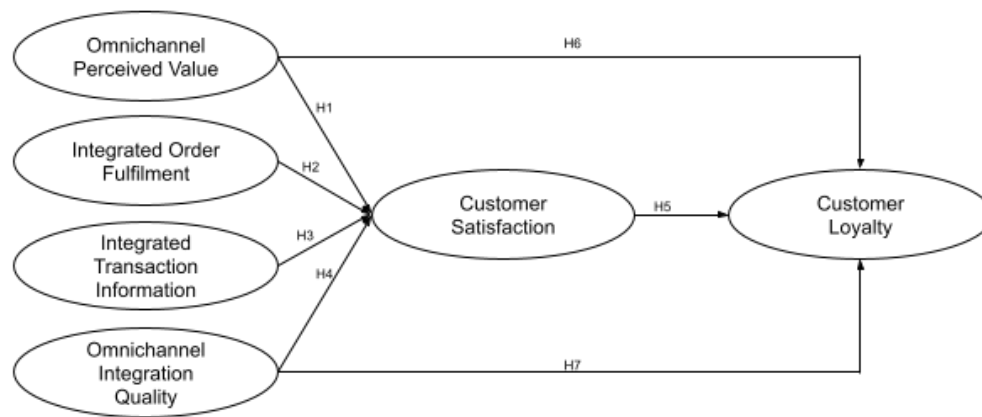
H4: Omni-Channel Integrated Quality gives a positive influence on Customer Satisfaction

Customer satisfaction and trust are found to be significantly related to customer loyalty (Akbar & Parvez, 2009). Several authors have found a positive correlation between customer satisfaction and loyalty (Anderson & Sullivan, 1993; Bolton & Drew, 1991; Fornell, 1992). Customer loyalty is strongly assessed through satisfaction (Hallowell, 1996). However, there is a phenomenon that satisfied customers may seek offers from other companies to obtain a higher level of service or benefit from competitive prices, whereas dissatisfied customers are likely not to leave the company but repeat their purchase because they believe there is no other alternative (Mittal & Lassar, 1998). It has been demonstrated that a higher level of customer loyalty is achieved when customer satisfaction is assured (Pont & McQuilken, 2005). Hart and Johnson (1999) state that one of the conditions of true customer loyalty is total satisfaction. Thus, This study attempts to confirm this relationship as part of the omni-channel retail, assuming the following:

H5: Customer Satisfaction gives a positive influence on Customer Loyalty

Research studies conclude that when the customers perceive that when the quantity of value received from one firm exceeds that available from others, it results in higher customer loyalty from the customers (Senić & Marinković, 2014). Other studies have supported that perceived value contributes significantly to customer loyalty (Hallowell, 1996; Parasuraman & Grewal, 2000). (Carlson et al., 2015) examine the effect of customer perceived value on online channel satisfaction and loyalty then reveal that a positive relationship as well as Swaid and Wigand (2012) have demonstrated this result in the multi-channel context as they found that the perceived value of multi-channel used by a firm enhances customer loyalty. In the omni-channel context Huré et al., (2017) estimated that an omni-channel highly valued by customers will also drive loyalty. So, this study attempts to confirm the positive relationship between omnichannel perceived value and customer loyalty.

H6: Omni-Channel Perceived Value gives a positive influence on Customer Loyalty



Source: Research Result
Figure 1. Research Model

METHOD

Measurement and Sample

This research utilized a quantitative methodology, employing an online survey to collect data from omnichannel users in Indonesia. Omnichannel users refer to individuals who regularly utilize Omnichannel platforms to manage their E-commerce activities across various channels, including online stores, mobile apps, and physical stores. The target population for this research consisted of 90 omnichannel users in Indonesia, which exceeds the recommended minimum sample size guidelines based on the preferred sample-to-variable ratio rule of 15:1 or 20:1 (Hair et al., 2018; Memon et al., 2020). To ensure a representative sample, a stratified purposive sampling technique will be utilized. The sample will be stratified based on demographic factors such as age, gender, E-commerce category, E-commerce location, and position. This approach is intended to yield reliable results regarding the influence of the omnichannel approach on customer satisfaction and loyalty.

The development of our questionnaire is a structured and systematic process, meticulously carried out to obtain information from our respondents. This careful approach is key to producing valid and reliable data, as emphasized by Arikunto (2010) and Creswell (2014). The questionnaire can be a cost-effective research tool that provides questions or written statements to respondents to obtain the desired information for use in data collection (Jack & Clarke, 1998).

Questionnaire consists of six major sections (Hamouda, 2019; Lee, 2020; Sumrit & Sowijit, 2023). Firstly, omnichannel perceived value was measured using 5 items. The items used to measure this variable are (1) positive customer retention, (2) omnichannel value commensurate with the price, (3) time efficiency benefits, (4) easy to use, and (5) comfortable as a management system. Secondly, integrated order fulfillment was measured using 4 items. The items used to measure this variable are (1) the ease of tracking orders, (2) helps companies to handle returns easily, (3) order management experience, and (4) real-time inventory synchronization. Thirdly, integrated transaction information was measured using 4 items. The items used to measure this variable are (1) provide complete information regarding usage procedures, (2) provide complete information regarding order history, (3) provide useful recommendations, and (4) provide complete information regarding online and offline transactions. Fourthly, omnichannel integration quality was measured using 5 items. The items used to measure this variable are (1) consistent quality, (2) omnichannel systems run smoothly, (3) carry out multiple transactions with real time information, (4) product stock information on all channels, and (5) can be integrated with all types of API. Fifthly, customer satisfaction was measured using 6 items. The items used to measure this variable are (1) satisfied with the omnichannel service offered, (2) omnichannel service has been successful, (3) omnichannel

system has met user expectations, Lastly, customer loyalty was measured using 5 items. The items used to measure this variable are (1) positive feedback about omnichannel services to others, (2) recommend omnichannel to others, (3) encourage others to use omnichannel services, (4) consider omnichannel as first choice for managing orders across all sales channels, and (5) continue to use omnichannel in the future.

To collect data, we sent a Google form link to potential respondents. Following research conducted in this context to consider customers who have omni-channel experience, additional criteria were used to select participants at the beginning of the questionnaire (Juaneda-Ayensa et al., 2016; Huré et al., 2017; Zhang et al., 2018) where potential respondents are owners, managers, or sellers of e-commerce who use Omnichannel to manage their business. We also limited respondents to the Jakarta, Bogor, Depok, Tangerang, and Bekasi areas. Before effective data collection, a pretest was conducted to assess understanding of the questionnaire, clarity of items, length, and time required for survey administration. The feedback received helped us improve and finalize the questionnaire.

In this research, the questionnaire given to respondents uses a closed list of questions. The questions in the questionnaire were measured using a 1-5 Likert scale, with answer choices: strongly disagree (SD), Disagree (D), Neutral (N), Agree (A), and strongly agree (SA).

Data Analysis

The observation unit comprised respondents with omni-channel experience to minimize potential bias during data collection. This data analysis uses the Structural Equation Modeling (SEM) data analysis method based on Partial Least Squares (PLS) with the help of SmartPLS software. According to Nisa et al. (2021), SEM is a data analysis technique used to simultaneously test relationships formed by one or more independent variables or unmeasured variables. In addition, PLS focuses on testing the causal relationship between latent variables and indicators simultaneously. In implementing PLS-SEM, a combination of these two techniques, there are two model evaluation stages: the Inner Model (Structural Model) to assess the relationship between latent variables and the Outer Model (Measurement Model) to evaluate the relationship between latent variables and their indicators.

RESULTS AND DISCUSSION

Respondent Profile

To contextualize the findings, respondent demographics were analyzed, including age, gender, job position, and e-commerce platform used. This consists of age, gender, job position, company location, industry, type of business, the e-commerce platform in use, e-commerce business operation, monthly revenue, duration of omnichannel use, frequency of omnichannel use, and omnichannel use last time. Among the 62 participants who completed the online questionnaires, 61.3% were aged 25-34 years old respondents while 19.4% were aged 18-24 years old respondents. In terms of gender distribution among respondents overall approximately 64.5% of respondents were female and 35.5% were male, with 50% working as owners and 19.4% as managers, predominantly located in Jakarta. Furthermore, the Fashion industry emerged as the dominant industry among respondents with approximately 56.5% of respondents. Additionally, when considering specific e-commerce platforms employed by respondents during their latest engagement, Jubelio was predominant with a significantly high percentage about 35.4% of respondents, whereas BigCommerce accounted for 16.9% use amongst respondents.

Measurement model

It is important to test the validity and reality of variables to complete hypothesis testing. The validity test was carried out to determine the suitability of the questionnaire used to measure and obtain research data from respondents. The reliability test is carried out to find out

whether the questionnaire has consistency if measurements are carried out with the questionnaire repeatedly. The convergent validity was assessed through loading factors with testing criteria where values are greater than 0.7 and AVE with testing criteria where values are greater than 0.5. The discriminant validity was assessed through HTMT testing criteria where values are less than 0.9. In carrying out reliability tests we look at cronbach alpha and composite reliability with testing criteria where values are greater than 0.7 which indicates that all measurements are valid.

Table 1. Construct Validity and Reliability

Variable	Item	Construct Validity		Reliability	
		Loading Factor	AVE	Cronbach's Alpha	Composite Reliability
Omnichannel Perceived Value (OPV)	OPV1	0.71	0.731	0.908	0.911
	OPV2	0.783			
	OPV3	0.836			
	OPV4	0.799			
	OPV5	0.862			
Integrated Order Fulfillment (IOF)	IOF1	0.782	0.649	0.891	0.892
	IOF2	0.79			
	IOF3	0.856			
	IOF4	0.758			
Integrated Transaction Information (ITI)	ITI1	0.87	0.636	0.809	0.821
	ITI2	0.776			
	ITI3	0.769			
	ITI4	0.819			
Omnichannel Integration Quality (OIQ)	QIQ1	0.844	0.655	0.824	0.831
	QIQ2	0.636			
	QIQ3	0.815			
	QIQ4	0.814			
	QIQ5	0.821			
Customer Satisfaction (CS)	CS1	0.781	0.624	0.847	0.859
	CS2	0.752			
	CS3	0.809			
	CS4	0.853			
	CS5	0.805			
	CS6	0.83			
Customer Loyalty (CL)	CL1	0.87	0.639	0.858	0.863
	CL2	0.869			

	CL3	0.835			
	CL4	0.811			
	CL5	0.887			

Source: Research data

Structural model

This study used a bootstrap hypothesis testing procedure to assess the impact of the variables and to validate the research hypothesis. Following the methodology outlined in Memon et al. (2021), the significance of the data was determined using a bootstrap approach. The hypothesis was considered supported if the T-statistic exceeded 1.96 (one-tailed) with an alpha level of 0.05.

Table 2. Significant and Coefficient

Hypothesis		Path Coefficients	T-Statistics	P-Values	Remarks
H1	Omni-Channel Perceived Value - Customer Satisfaction	0.444	3.41	0	Significant
H2	Integrated Order Fulfillment - Customer Satisfaction	0.414	2.798	0.003	Significant
H3	Integrated Transaction Information - Customer Satisfaction	0.341	1.924	0.027	Significant
H4	Omni-Channel Integrated Quality - Customer Satisfaction	0.249	1.936	0.026	Significant
H5	Customer Satisfaction - Customer Loyalty	0.265	2.303	0.011	Significant
H6	Omni-Channel Perceived Value- Customer Loyalty	0.214	2.056	0.02	Significant
H7	Omni-Channel Integrated Quality - Customer Loyalty	-0.114	0.84	0.201	Not Significant

Source: Research data

As shown Table 2, there is a positive and significant relationship between omni-channel perceived value, integrated order fulfillment, integrated transaction information, and omni-channel integrated quality with customer satisfaction; thus, H1, H2, H3, and H4 were supported. There is also a significant and positive link between customer loyalty and customer satisfaction. So, H5 was supported. Omni-channel perceived value has a positive and a significant impact on customer loyalty but not omni-channel integrated quality. Hence, H6 was supported, whereas H7 was rejected.

The first hypothesis proposes a strong positive relationship between omni-channel perceived value and customer satisfaction. This connection is underpinned by findings indicating that higher perceived values lead to increased customer satisfaction, as noted in the study by Ali (2020) arguing that perceived value, shaped by service quality, significantly influences customer satisfaction outcomes. The second hypothesis posits that integrated order fulfillment is directly correlated with customer satisfaction. This assertion is supported by findings from research conducted by Mabotja and Mavutha, which indicate that effective and timely order fulfillment processes directly enhance customer satisfaction (Mabotja & Mavutha, 2024). Furthermore, the work of Ehsani and Hosseini corroborates this, illustrating how order fulfillment not only meets customer expectations but is foundational in obtaining favorable customer satisfaction ratings (Ehsani & Hosseini, 2021). The third hypothesis investigates the relationship between integrated transaction information and customer satisfaction, receiving

empirical support albeit with a moderate effect size. Research indicates that transparency and accessibility of transaction information significantly contribute to customer satisfaction. This is consistent with studies on the importance of information quality in the service delivery context, as discussed by Ekasari et al. (2023) who identified that clarity in transaction details fosters improved customer satisfaction. For the fourth hypothesis, the positive relationship between omni-channel integrated service quality and customer satisfaction is well-supported. Notably, Zhang et al. (2022) developed a measurement framework that links integrated service quality across multiple channels to customer satisfaction, reinforcing customer loyalty as a result. The findings from Kanwal et al. (2022) also support the notion that omni-channel strategies focused on quality integration effectively bolster customer satisfaction. The fifth hypothesis confirms the established link between customer satisfaction and loyalty within an omni-channel framework. This correlation is further supported by Peksa and Pekša (2021), where customer loyalty is shown to stem from consistent satisfaction in e-commerce environments. However, contrary to our expectations, the findings of this study reveal that there is no significant relationship between omnichannel integration quality and customer loyalty. Alfina et al. (2021) suggests that brand association mediated through quality experiences in omni-channel settings may yield varying impacts on loyalty outcomes across different contexts, indicating the need for further investigation into specific consumer segments or situations.

CONCLUSION

Theoretical implications

This study contributes to the extent of literature in the following facets. To the best of the author's knowledge, this study is one of the first to empirically test almost all of the research model relationships in an omnichannel context from the perspective of omnichannel users. Given that the primary goal of an omnichannel strategy is to target and engage with customers across multiple channels, it is essential to consider the omnichannel user perspective to investigate the impact of omnichannel further. While previous research has focused on the impact of omnichannel characteristics on retail customer satisfaction (Lee, 2020).

Managerial implications

The results of this study can provide information on the most influential factors in increasing customer satisfaction and loyalty to help the strategy for developing existing features. By focusing on optimizing these influential factors, companies can achieve a demonstrable improvement in customer satisfaction, leading to enhanced loyalty and sustained platform engagement. Specifically, the findings provide a data-driven foundation for prioritizing development efforts, allocating resources effectively, and tailoring platform functionalities to meet the evolving needs of users. Furthermore, the results of this study serve as a valuable resource for omnichannel platform users. By disseminating the key findings and recommendations, users can gain a deeper understanding of the platform's capabilities and leverage its features more effectively. This knowledge empowers users to optimize their engagement with the platform, leading to enhanced satisfaction and loyalty. Ultimately, the insights derived from this study facilitate a collaborative approach to platform evolution, ensuring that future developments are aligned with user needs and optimize the overall impact of omnichannel solutions. In essence, this research serves as a guide for both companies and users, facilitating the creation of a more customer-centric and effective omnichannel ecosystem. By aligning platform development with user needs and empowering businesses to optimize their omnichannel strategies, this study contributes to enhanced customer satisfaction and increased loyalty. There are a few limitations to this research that need to be considered and can be a direction for further research. First, this research was only carried out in certain cities where the research findings could be limited. Second, although we added variables to develop previous

studies, in this study the mediator effect has not been tested. Therefore, we recommend that future research should explore this issue and attempt to study the potential impact of this mediation. Finally, the survey method used to collect data is carried out at one time. Thus, longitudinal studies are highly recommended in future research to determine whether client perceptions change over time, as is the use of quantitative approach, including qualitative and quantitative research, to better test the cause-and-effect relationships described in this study.

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