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Understanding the Continuance Intention of Omnichannel: Combining TAM and TPB

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Abstract: Nowadays, consumers use information devices to use products and services through various channels. Omnichannel promotes sales improvement by allowing businesses to secure multiple channels. It provides consumers with a wider range of choices and monetary advantages. As such, omnichannel facilitates economic sustainability as a major platform for commerce. The purpose of this study is to identify the determinants of consumers' continuous intention to use omnichannel. This research collected data from 262 consumers who had used omnichannel. Partial lease square structural equation modeling was employed to analyze the empirical data. The results found that accessibility positively affects perceived ease of use, perceived usefulness, and relative advantage. Monetary saving positively influences relative advantage. Perceived risk has a negative association with relative advantage. Continuance intention is influenced by relative advantage, attitude, subjective norms, and perceived behavioral control. This study offers an academic contribution in that the model was expanded by combining the theories of both technology and human behavior. It provides practical implications that omnichannel practitioners should prioritize money saving, perceived risks, and relative advantages. To enhance the generality of the results, future research needs to survey consumers in more countries. This work would be a useful guide to the sustainability of the economy.

Keywords: omnichannel; continuance intention; relative advantage; technology acceptance model; theory of planned behavior

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1. Introduction

With the advancement of information and communication technology (ICT), the transaction behavior between sellers and consumers has also evolved. Many companies operate offline stores and online sites together to provide consumers with a variety of channels [1,2]. Consumers can search for and purchase products across multiple channels such as online, offline, and mobile [3–5]. By combining the characteristics of each distribution channel, consumers can purchase products regardless of time and place [6]. This trading environment is called omnichannel. Omnichannel is a compound word of 'omni', meaning everything and 'channel', meaning the distribution routes of products [7]. Companies use an omnichannel strategy to provide potential customers with the same brand experience across multiple channels, thereby facilitating their buying journey [8].

Market leaders operate omnichannel to enhance the purchasing experience of consumers and increase corporate sales [9,10]. Amazon made it easy to check inventory and order frequently used items by using the Dash button [11,12]. Dash button collects the display information of the offline store, and realizes the distribution management by transmitting it to the online processor [13]. Later, Amazon launched 'Amazon Go', which is an unmanned grocery store [14,15]. Consumers automatically pay for the products they want through 'Just Walk Out' technology [16,17]. Amazon's four-star store sells only products with a rating of 4 or higher on the Amazon site [18]. As omnichannel adds new value to both consumers and businesses in many ways, the number of consumers who want to

utilize omnichannel is steadily increasing [19]. The benefits of omnichannel are also confirmed in several statistics. By 2030, the market for omnichannel retail commerce platforms is anticipated to grow at a noteworthy CAGR of 19.2% and reach up to $14.3 billion [20]. Marketers that used three or more channels in a campaign saw a 494% increase in the number of orders than those who just used one channel [21]. It was also reported that 87% of retail leaders agree omnichannel strategy is preeminent to business success [22]. In this context, it is very meaningful to reveal the continuous use behavior of omnichannel users and their antecedents. In this study, omnichannel is defined as a commerce platform in which various channels can be used simultaneously based on information technology (IT) (e.g., mobile app, web, customer information processing system).

A concrete example of omnichannel could be buying sports apparel (online or offline). Consumers use information devices to check various types of clothes, prices, and store locations. When consumers can access omnichannel anytime and anywhere, they would be satisfied with it. As well, omnichannel users can save money by making purchases in the channel that offers the most reasonable price. Some consumers ask the clerk for the Internet price after viewing products in the store. Afterward, they purchase the product at a lower price. In the process, some consumers may be reluctant to enter their personal or payment information on online devices and the web. They may be negative about the non-face-to-face transaction itself. Based on the above examples, consumers can gain a relative advantage compared to conventional transactions. Since omnichannel provides more information and allows consumers to buy products at lower prices, they would form favorable attitudes toward it. Neighbors also recommend using it and agree to use omnichannel not only for sports apparel but also for purchasing other products. Because using omnichannel is easily possible with a smartphone, people can participate with few resources. The examples above demonstrate business transformation for a sustainable economy. Through the convergence of information devices and brick-and-mortar stores, omnichannel can systematically provide a viable solution to the major economic subjects (i.e., sellers, consumers, and platform providers) in a transforming economy. It benefits companies from a customer relationship management, inventory operation, and revenue perspective. It also provides consumers with a better environment than traditional transactions in terms of efficiency, price, convenience, and comparison. It accelerates the field of information and communication technology by pioneering the platform business area for multichannel. In the current economic environment, where omnichannel is widespread and continuously evolving, sellers, consumers, and distributors will be more inclined to exploit its possibilities. Thus, economic sustainability can be strengthened.

The object of this paper is to clarify the antecedents of the continuance intention of omnichannel users. This work targets users who have experienced omnichannel-based on IT. The scope of the study is to explain the continuance intention of omnichannel consumers by integrating technology acceptance theory, behavior theory, and situational variables.

This paper fills the gaps in existing studies and makes new contributions in the following respects. First, this study investigates consumer behavioral intentions through a multidimensional approach. It noted that omnichannel users (1) utilize IT, (2) engage in purchasing activities, and (3) plan actions in purchase decision-making. For this rationale, the current research reflects technological factors, financial variables, and human behavioral perspectives. Existing studies have mainly focused on the technology used in omnichannel [23–25]. They have adopted a model, such as the technology acceptance model (TAM) [26,27] or the unified theory of acceptance and use of technology (UTAUT) [28]. These studies did not take into account financial factors or the basis of human behavior. The current paper differs in that it considers factors related to the behavior of omnichannel users more comprehensively than previous studies. Second, this work explains the perceived ease of use, perceived usefulness, and relative advantage based on accessibility which has been verified as the crucial technological factor in omnichannel [29–31]. Former works have mainly adopted ease, usefulness, and advantage as exogenous variables [23,32,33]. This study elucidates the formation process of ease, usefulness, and advantage in more detail by

validating the effects of accessibility. Third, the present study differs from past research in that it adds factors related to monetary transactions to the model. Since omnichannel is involved in consumers' payment behavior, factors affecting consumer confidence may play a significant role in generating continuance intention. This paper outlines the benefits of omnichannel in a balanced way by introducing both money savings and perceived risks. Fourth, this article looks into consumption behavior by applying the theory of planned behavior (TPB) [34]. Consumers' attitudes, subjective norms, and perceived behavioral controls may systematically explain usage behaviors in the consumption environment. Through this approach, this study can illuminate the intention of continuous use of omnichannel users in more depth. Finally, this research makes a valuable contribution to the sustainability of the economy by identifying the factors affecting the intention to continue using omnichannel. Omnichannel offers consumers price discounts, channel diversity, and a wider range of choices. It provides companies with benefits such as market expansion, reduced operating costs, and strengthened relationships with customers. Omnichannel researchers can create a more improved multichannel platform based on the results of this study. Working-level officials can create a more effective trading environment for both businesses and consumers by reflecting on the study results. Companies and consumers, the main players in the economy, will be able to enjoy better benefits through the omnichannel.

This paper is structured as follows. Section 2 summarizes previous studies related to omnichannel. Section 3 presents the research model and explains each hypothesis. Section 4 describes data collection and measurement tools. Section 5 guides the statistical analysis results. The test results for each hypothesis are provided together. Section 6 conducts a discussion by comparing the results of this research with previous studies. Finally, Section 7 contains the contributions, limitations, and future research directions.

2. Background and Related Work

With the development of ICT, the purchasing behavior of consumers has also changed [35,36]. As online and offline channels become more fragmented, various scholars have identified the intentions and behaviors of customers in various ways [37–39].

Multichannel or omnichannel, including online channels, require ICT. Consumers search and use information through digital devices in the shopping process. For this reason, many studies have reflected theories related to technology acceptance. Silva, Martins and Sousa [40] suggested the conceptual model for explaining consumer behavior in the case of omnichannel. The authors revealed that risk and cost hurt future use intention. They also figured out that intention to use is affected by compatibility, usefulness, and ease of use. Use intention was shown to lead to actual use. Juaneda-Ayensa, Mosquera and Sierra Murillo [23] investigated the key antecedents of purchase intention in omnichannel stores by integrating TAM, UTAUT, and UTAUT2. They discovered that purchase intention is affected by performance expectancy, effort expectancy, and personal innovativeness. Kim, Connerton and Park [24] identified the major predictors of customers' behavior (buy online and pick up in-store) in the domain of omnichannel. They extended UTAUT by adding personal innovativeness. The research model included task-technology fit as a mediator and demographic components (i.e., gender, age, and income) as control variables. The results unveiled that the intention is influenced by performance expectancy, effort expectancy, facilitating conditions, and personal innovativeness. Mosquera et al. [25] explored the key factor influencing in-store smartphone use in an omnichannel context. They developed the analytical framework by applying UTAUT2. They also examined the moderating effects of age on behavioral intention. It was found that behavioral intention is affected by performance expectancy, hedonic motivation, and habits in both millennials and non-millennials. In millennials, social influence was validated to positively influence behavioral intention. Kazancoglu and Aydin [41] researched consumers' purchase intention through omnichannel. The authors found 12 themes about purchase intention by interviewing four university student groups. They pointed out that 6 themes are similar to the variables in UTAUT2: performance expectancy, effort expectancy, facilitating conditions, hedonic

motivation, habit, and price value. The other 6 themes were perceived trust, perceived risk, anxiety, need for interaction, situational factors, and privacy concerns. Santosa et al. [33] examined the drivers of continuous intention to use digital payment by dividing the users into baby boomers and X generations. They extended the UTATU2 by adding the inertia to confirm the users' behavior under COVID-19 more elaborately. All 6 major exogenous variables in UTAUT2 were found to significantly impact continuance intention via satisfaction. Inertia was revealed to enhance continuance intention.

Some researchers emphasized the consistency of information and services shared between channels. Park and Kim [42] examined the main deciding factors of the behavior of omnichannel users. They proposed the precursors such as service integration, information integration, information consistency, and perceived effectiveness of the institutional mechanism. The results were different according to the need for cognition. In all levels of need for cognition, it was uncovered that the perceived effectiveness of institutional mechanisms positively affects user behavior via use intention.

Several scholars have used the stimulus-organism-response (S-O-R) paradigm to explain the behavior of omnichannel consumers. Hsieh et al. [29] designed the research model to investigate the key factor affecting retention and participation in the context of multichannel. They employed the S-O-R paradigm and the loyalty framework in the model. According to the results, information consistency, channel accessibility, and personal data integration significantly affect perceived quality, leading to a greater formation of satisfaction, eventually increasing both retention and participation. Pantano, Rese and Baier [43] applied the S-O-R paradigm to investigate the purchase intention of multichannel consumers. They figured out that store atmosphere and channel availability are the critical determinants of perceived service quality. They also found that service quality significantly affects purchase intention through attitude and satisfaction.

In summary, some studies have explained omnichannel users by considering both technological and behavioral factors. However, they have not fully reflected the unique characteristics of omnichannel, its advantages, technology acceptance factors, and planned actions.

3. Theoretical Development and Research Hypotheses

Figure 1 shows the research framework to clarify the determinants of the continuance intention of omnichannel users. The current study posits that accessibility significantly affects perceived ease of use, perceived usefulness, and relative advantage. It postulates that relative advantage is influenced by monetary saving and perceived risk. This research surmises that continuance intention is formed by attitude, subjective norm, and perceived behavioral control.

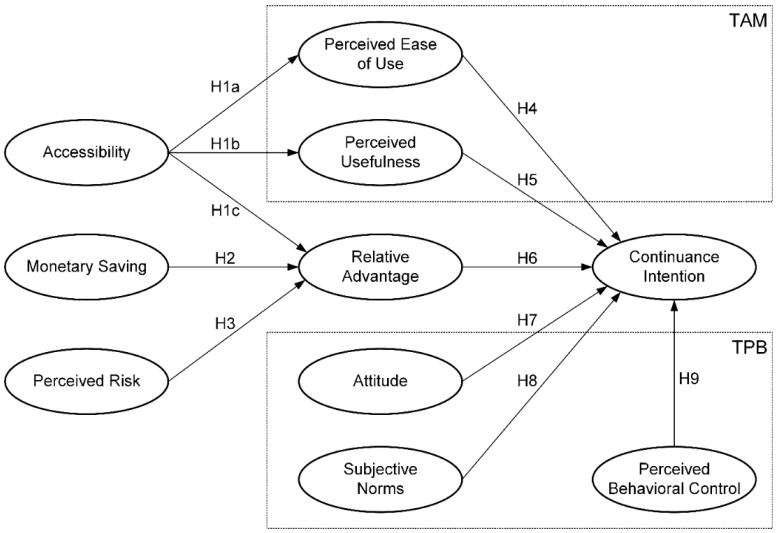

Figure 1. Research Model.

3.1. Accessibility

Accessibility represents the degree to which consumers can access several channels [29]. It is one of the major components of the consumer experience index [44]. It significantly affects consumer loyalty via channel quality and satisfaction in the case of multichannel [29]. Mobile accessibility has a positive correlation with both perceived ease of use and perceived usefulness [45]. When the accessibility of omnichannel improves, consumers, can search for and purchase what they want easier. As consumers can access omnichannel more smoothly, they may perceive it as more useful. Moreover, enhanced access would provide consumers with relative advantages. Thus, this study hypothesizes:

Hypothesis 1a (H1a). *Accessibility has a positive influence on perceived ease of use.*

Hypothesis 1b (H1b). *Accessibility has a positive influence on perceived usefulness.*

Hypothesis 1c (H1c). *Accessibility has a positive influence on relative advantage.*

3.2. Monetary Saving

Monetary saving is conceptualized as spending less money to save for the future [46]. It is related to utilitarian benefits, which offer consumers value by achieving their purpose [47]. Monetary saving enhances utilitarian value in the shopping context [48]. If money saving increases, the relative advantage would increase in addition to utilitarian benefits and utilitarian value. As omnichannel saves consumers money in a shopping environment, they perceive it to provide a relative advantage. Therefore, this study suggests the following hypothesis.

Hypothesis 2 (H2). *Monetary saving has a positive influence on relative advantage.*

3.3. Perceived Risk

Perceived risk is described as a consumer's subjective assessment of the potential unclear negative values from an online transaction [49]. Risk in e-commerce includes performance risk, financial risk, and transaction/privacy risk [50]. Perceived risk in personal information and transactions plays a very important role in using commerce platforms [51,52]. It indirectly dampens the impact of perceived usefulness on consumer behavior [53]. In an omnichannel shopping environment, consumers pay through the web or mobile app. Moreover, consumer information is shared and utilized in various channels. Omnichannel's unique commerce style may cause consumers to feel anxious in the transaction process. The relative advantages of omnichannel may diminish as the level of risk perceived by consumers rises. For these reasons, the current study predicts that perceived risk inhibits relative advantage.

Hypothesis 3 (H3). *Perceived risk has a negative influence on relative advantage.*

3.4. Perceived Ease of Use

Perceived ease of use is conceptualized as the extent to which an individual believes that using a certain system would be free of effort [26]. Past studies have revealed that perceived ease of use directly affects the intention to use m-shopping [32,54]. Omnichannel is a combination of various channels and information. Because it is a complex system, it should be developed so that users can easily understand it. The easier an omnichannel platform is to use, the more likely consumers are to continue using it. Hence, this study predicts that perceived ease of use elevates the level of continuance intention.

Hypothesis 4 (H4). *Perceived ease of use has a positive influence on continuance intention.*

3.5. Perceived Usefulness

Perceived usefulness is justified as the degree to which a person believes that using a system may improve job performance [26]. It has been validated as the dominant antecedent

of continuance intention in various information systems (ISs) [55–57]. If omnichannel enables consumers to obtain more useful information and shop more effectively, they will continue to use it. Thus, the present research surmises that perceived usefulness accelerates the formation of continuance intention.

Hypothesis 5 (H5). *Perceived usefulness has a positive influence on continuance intention.*

3.6. Relative Advantage

Relative advantage deals with the advancement of existing conditions drawn from the innovation, such as economic benefits, cost savings, and convenience [58,59]. It positively leads to the stabilization of e-commerce after adoption [60]. If omnichannel promotes the efficiency and effectiveness of consumers, they are more likely to take advantage of it. Accordingly, this study establishes the following hypothesis.

Hypothesis 6 (H6). *Relative advantage has a positive influence on continuance intention.*

3.7. Attitude

Attitude reflects a positive or negative mood or feeling when someone performs an activity [61,62]. It has been shown that attitude is the deciding factor of human behavior in several decision-making contexts [63–65]. Attitude positively influences the intention to adopt mobile shopping [66], use e-commerce [67], and purchase on omnichannel [68]. Omnichannel users make purchases through transaction platforms, such as the web and mobile. As users form a more favorable attitude toward omnichannel, their intention to use may increase. Therefore, the present study suggests that attitude facilitates continuance intention.

Hypothesis 7 (H7). *Attitude has a positive influence on continuance intention.*

3.8. Subjective Norm

Subjective norm is justified as an individual's belief that the majority of individuals who are significant to him believe he should or should not engage in the contested conduct [69]. It positively affects behavioral intention in various contexts [65,68,70–72]. Since omnichannel offers several benefits in the purchase process, the surrounding influence may be significant. Hence, this research proposes that when the effect of the subjective norm is higher, consumers are likely to use omnichannel continuously more.

Hypothesis 8 (H8). *Subjective norm has a positive influence on continuance intention.*

3.9. Perceived Behavioral Control

Perceived behavioral control is defined as a person's belief in their competence to carry out a particular performance [61]. It significantly affects the intention to use e-commerce [67]. Perceived behavioral control also significantly influences purchase intentions by using smartphone apps [62], social network sites (SNS) [73], or omnichannel [68]. Based on the above findings, this paper hypothesizes:

Hypothesis 9 (H9). *Perceived behavioral control has a positive influence on continuance intention.*

4. Research Methodology

4.1. Measurement Instrument

The survey questions were taken from the literature on marketing and IS to guarantee the validity of the constructs taken into account in the analytical framework. Based on previous studies, this research revised the definitions of each construct to fit the omnichannel context. Table A1 details the definition of each construct. The measuring elements also were modified to fit the omnichannel environment. Table A2 describes the measurement items of constructs. A seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), was used to evaluate all variables aside from demographic data and frequency. The

author initially wrote the questionnaire in English. After that, the English questionnaire was translated into Korean by a Korean researcher who is fluent in English. Two researchers in the marketing and IS area reviewed the survey's questions. They drew attention to the questionnaire's overall structure, logic, ambiguity, and contradictory sentences. 20 respondents answered the questionnaire for the pilot test in advance. They commented on difficult-to-understand expressions, duplicate questions, and difficult-to-answer content. Participants advised that the definition of omnichannel could have been a little clearer throughout the questionnaire. We applied the definition of omnichannel in a broad sense and guided it on the first page of the questionnaire. After thoroughly reflecting on the opinions of the experts and the respondents, a major survey was conducted.

4.2. Questionnaire Design and Data Collection

The present study carried out a cross-sectional online survey. The survey approach enables the generalizability of results, replication of results, and concurrent evaluation of various elements [74]. The survey method is robust and extensively used in the quantitative research domain allowing researchers to reliably validate theories and models [75]. Online surveys have been used in recent research related to omnichannel [24,76]. The first page of the questionnaire explained the purpose of this study, informed consent, and academic publication. Only respondents who agreed to the conduct of this study and its academic publication participated in the main survey. The questionnaire body consisted of a total of three sections. The first section dealt with users' omnichannel usage frequency and devices used. The second section asked for indicators for the major constructs. The final section described the questions about the demographic information of respondents. Through the use of reverse coding projects and attention trap questions, this research made sure that attention constraints in the online survey procedure were overcome. The questionnaire collection was performed by an agency specialized in conducting social surveys in South Korea. It selected respondents who had used omnichannel, distributed an online survey site, and encouraged responses. The agency prioritized communities of consumers with experience using omnichannel. After that, the purpose of this study was explained to each community and an online link was distributed. The agency periodically encouraged participation to increase the response rate. The survey was performed from April to May 2022. A total of 402 links were distributed, of which 270 responses were collected. The response rate was 67.2%. After removing the 8 insincere responses, 262 valid responses were obtained. This study confirmed the minimum sample size for structural equation modeling (SEM). A priori sample size calculator was used to check the minimum requirement [77]. Inputting the required information, such as 0.1, anticipated effect size, 80% desired statistical power level, 10 number of latent variables, 29 number of observed variables as well as 0.05 probability level, the minimum required sample size is 216. Since the sample size of this study is 262, the requirement is appropriately met. Among the respondents, 125 (47.7%) are male and 137 (52.3%) are female. This has a distribution very similar to the sample collected in a recent study related to omnichannel [78]. Those in their 20s have the highest frequency with 83, followed by those in their 30s with 71. 74.4% of the participants were from the upper-middle-class income group having an annual income between KRW 10–70 million (1 USD = 1228.6 KRW approx.) and were most likely to afford to shop something using omnichannel. Table 1 details the demographic characteristics of the samples.

Table 1. Demographic characteristics of the samples.

Demographics	Item	Subjects (N = 262)	
		Frequency	Percentage (%)
Gender	Male	125	47.7
	Female	137	52.3
Age	20s	83	31.7
	30s	71	27.1
	40s	55	21.0
	50s	53	20.2
Device	Smartphone	169	64.5
	Tablet	22	8.4
	Laptop	71	27.1
Frequency	Less than once a week	122	46.6
	Once a week	109	41.6
	A few times a week	25	9.5
	Once a day	3	1.1
	A few times a day	2	0.8
	Several times a day	1	0.4
Annual Income (million KRW)	<10	67	25.6
	10–30	8	3.1
	30–50	146	55.7
	50–70	41	15.6
Education	High school	71	27.1
	Bachelor	178	67.9
	Master	12	4.6
	Doctor	1	0.4

5. Results

Using the partial least squares (PLS) technique, this study examined the theoretical framework. Compared to covariance-based SEM techniques (e.g., LISREL and AMOS), PLS has the benefit of having fewer limits on the distribution of sample size and residuals [79]. An evaluation of the measurement model's validity and reliability was conducted first, followed by an evaluation of the structural model.

5.1. Measurement Model

Confirmation factor analysis was used to evaluate the measuring scales' convergent validity, reliability, and discriminant validity. Composite reliability (CR) and Cronbach's alpha were used to evaluate scale reliability. All of the constructions' Cronbach's alpha and CR estimates were higher than the recommended cutoff point of 0.7 [80], indicating good construct reliability. When the CR scores are more than 0.9, it means that the model's internal consistency is strong. Since the lowest CR value is 0.903, the model has a satisfactory internal consistency. Next, convergent validity was attained when the survey items' factor loads reached 0.70 [81]. Strong evidence for convergent validity is provided by the factor loadings, which range from 0.854 to 0.940 [82]. Table 2 shows the test results of reliability and validity. Finally, the AVE values of the individual factors were compared to the correlation value for that column or row to investigate discriminant validity. The square root of the AVE values of constructs exceeded the correlations between the construct and the other constructs, thus satisfying discriminant validity. Table 3 describes the correlation matrix and the results discriminant assessment.

Table 2. Test Results of Reliability and Validity.

Construct	Items	Mean	St. Dev.	Factor Loading	Cronbach's Alpha	CR	AVE
Accessibility	ACS1	4.863	1.615	0.885	0.891	0.932	0.821
	ACS2	4.553	1.598	0.905			
	ACS3	4.622	1.567	0.928			
Monetary Saving	MOS1	4.821	1.527	0.921	0.844	0.928	0.865
	MOS2	4.939	1.383	0.939			
Perceived Risk	PRS1	3.366	1.466	0.891	0.874	0.922	0.797
	PRS2	3.817	1.474	0.884			
	PRS3	3.630	1.540	0.904			
Perceived Ease of Use	PEU1	4.748	1.530	0.900	0.901	0.938	0.835
	PEU2	4.405	1.559	0.900			
	PEU3	4.653	1.610	0.940			
Perceived Usefulness	PUS1	5.069	1.463	0.922	0.913	0.945	0.852
	PUS2	4.611	1.546	0.912			
	PUS3	4.927	1.535	0.934			
Relative Advantage	RLD1	4.943	1.401	0.854	0.838	0.903	0.756
	RLD2	4.569	1.493	0.862			
	RLD3	4.813	1.430	0.892			
Attitude	ATT1	5.038	1.295	0.925	0.901	0.938	0.834
	ATT2	4.515	1.469	0.878			
	ATT3	4.821	1.431	0.937			
Subjective Norms	SNO1	4.958	1.439	0.877	0.867	0.919	0.790
	SNO2	4.664	1.460	0.903			
	SNO3	4.744	1.548	0.887			
Perceived Behavioral Control	PBC1	5.115	1.363	0.927	0.903	0.939	0.838
	PBC2	4.756	1.597	0.899			
	PBC3	4.805	1.542	0.920			
Continuance Intention	COI1	5.008	1.325	0.924	0.912	0.945	0.851
	COI2	4.576	1.496	0.903			
	COI3	4.802	1.448	0.939			

Table 3. Correlation matrix and discriminant assessment.

Constructs	1	2	3	4	5	6	7	8	9	10
1. Accessibility	0.906									
2. Monetary Saving	0.602	0.930								
3. Perceived Risk	−0.392	−0.385	0.893							
4. Perceived Ease of Use	0.598	0.545	−0.436	0.914						
5. Perceived Usefulness	0.700	0.630	−0.358	0.617	0.923					
6. Relative Advantage	0.645	0.642	−0.443	0.602	0.640	0.870				
7. Attitude	0.629	0.548	−0.378	0.621	0.669	0.692	0.913			
8. Subjective Norms	0.644	0.565	−0.433	0.617	0.646	0.687	0.714	0.889		
9. Perceived Behavioral Control	0.649	0.587	−0.431	0.679	0.684	0.683	0.765	0.728	0.915	
10. Continuance Intention	0.668	0.602	−0.444	0.643	0.634	0.704	0.750	0.722	0.780	0.922

5.2. Structural Model

A SEM was conducted to evaluate the hypothesized paths among the constructs through PLS. This study applied a bootstrapping approach (bootstrapping subsample = 5000) to test the proposed hypotheses and path coefficients. As shown in Figure 2, nine of the eleven paths in the research model are supported.

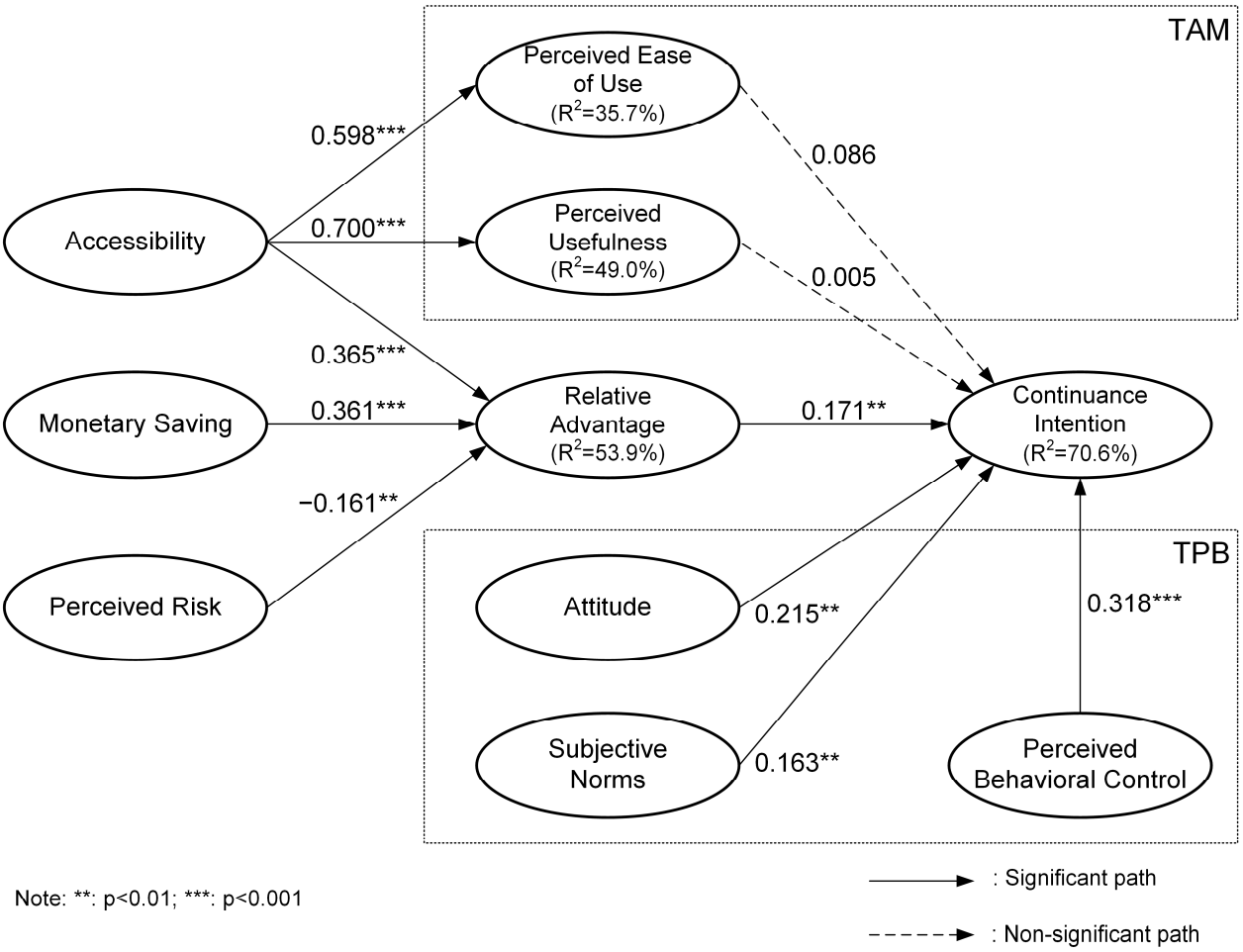

Figure 2. PLS Analysis Result.

Table 4 details the coefficient of each path, t-value, and significance testing results. The research model accounts for 70.6% of the variance in continuance intention.

Table 4. Significance testing results of the structural path coefficients.

H	Cause	Effect	Coefficient	T-Value	Hypothesis
H1a	Accessibility	Perceived Ease of Use	0.598	10.190	Supported
H1b	Accessibility	Perceived Usefulness	0.700	15.883	Supported
H1c	Accessibility	Relative Advantage	0.365	5.984	Supported
H2	Monetary Saving	Relative Advantage	0.361	6.116	Supported
H3	Perceived Risk	Relative Advantage	−0.161	3.066	Supported
H4	Perceived Ease of Use	Continuance Intention	0.086	1.505	Not Supported
H5	Perceived Usefulness	Continuance Intention	0.005	0.072	Not Supported
H6	Relative Advantage	Continuance Intention	0.171	3.166	Supported
H7	Attitude	Continuance Intention	0.215	3.167	Supported
H8	Subjective Norms	Continuance Intention	0.163	2.718	Supported
H9	Perceived Behavioral Control	Continuance Intention	0.318	5.064	Supported

6. Discussion

6.1. Main Results

This study attempted to identify the factors affecting continuance intention in the case of omnichannel. This has been achieved by integrating the situational variables, the proximal components in TAM, and the major constructs in TPB.

The analysis showed that accessibility positively affects both perceived ease of use and perceived usefulness. These results further support the observation concluded in a previous study [45]. One possible explanation is that the easier it is for consumers to access omnichannel, the easier and more useful they perceive it. The main feature of omnichannel is that it connects sellers and consumers through all channels. If consumers easily access the omnichannel at any time, they can shop more conveniently and get more help with shopping. The findings revealed that accessibility is the significant leading factor of relative advantage. This implies that if omnichannel is more accessible, consumers will benefit even more. Better accessibility also means that a variety of products can be viewed through multiple channels. As a result, a higher level of accessibility informs lower prices and offers a greater variety of products.

The study findings uncovered that money saving is the significant antecedent of relative advantage. Monetary saving was found to significantly affect utilitarian shopping value on online platforms [48]. These outcomes lie in the fact that when consumers benefit from the omnichannel, they perceive its advantages more strongly. Consumers who use omnichannel to buy products at lower prices rate its relative advantage higher. Because they have a specific purpose of economic benefits, they would evaluate the relative benefits of omnichannel better. They think that omnichannel is better than regular shopping in terms of price, convenience, and assortment.

The analysis unveiled that perceived risk undermines relative advantage. It was validated that perceived risk hurts perceived usefulness [45] and willingness to purchase [49]. When consumers are more concerned about the safety of transactions through omnichannel, they would think that its advantages are smaller. Consumers who recognize that omnichannel is risky would be sensitive to personal and payment information. Omnichannel provides various channel information by receiving information from users in IT devices. Thus, users with a high level of perceived risk appear to believe that there are more disadvantages than relative advantages of omnichannel.

The empirical results pointed out that perceived ease of use is not significantly related to continuance intention. In contrast to the results, previous studies have verified that perceived ease of use positively affects the intention to use m-banking [45,72] and shop through a mobile device [32]. One possible explanation for these discrepancies is that the technologies and functions used in omnichannel no longer guarantee continuous use intentions. As the level of the digital environment continues to develop, the ease of shopping platforms may be a basic attribute, not a strategic factor.

The empirical findings showed that perceived usefulness is not a predictor of continuance intention. Contrary to these findings, the significant relationship between perceived usefulness and intention to use was validated in related research [45,55]. It was also validated that perceived usefulness affects m-shopping intention [32]. The discrepancy between the results of this study and the conclusions of former works could be attributed to the following inferences. First, some consumers may not feel that omnichannel improve purchasing efficiency. Second, factors like consumer satisfaction and economic rewards would be more potent and significant in explaining omnichannel behaviors that are particularly focused on economic activities. Third, the technological adoption factor may role differently in explicating the later user behavior. Lastly, continuance intention would increase based on price, convenience, and assortment rather than usefulness for life, speed, and efficiency in the omnichannel context. In this study, perceived usefulness gauged usefulness for life, speed, and efficiency. Relative advantages measured discount, convenience, and diversity. Researchers must thus also identify new variables needed for a platform focused on consuming activities to operate continuously.

The analysis found that relative advantage is significantly related to continuance intention. Relative advantage has been found to positively affect behavioral intention to use mobile transactions [83,84] and adopt e-commerce in the stabilization stage [60]. These observations could be explained by the reason that the advantages offered by omnichannel encourage consumers to use it further. When users receive more price discounts, are more

convenient, and see more products by using the omnichannel, their intention to continue using it increases.

The results of the current study verified that attitude positively affects continuance intention. There were similar results in the former research, in which attitude enhances the purchase intention of consumers in a multichannel retail context [43] and SNS [73]. It was shown that a negative attitude significantly forms a negative intention to use e-commerce [67]. These results could be explained by the reason that the more favorable perceptions consumers have of omnichannel, the more likely they are to use it. When consumers think of omnichannel use as better, smarter, and more positive, they are likely to use it more.

The results of the study indicated that subjective norm impacts continuance intention. These results are in agreement with outcomes concluded in former studies [85–88]. One possible explanation for these results is the fact that when acquaintances give a good evaluation of omnichannel, consumers are more likely to continue using it. The more consumers' acquaintances support and agree to the use of omnichannel, the higher consumers' intention to continue using it.

The analysis results validated that perceived behavioral control is significantly associated with continuance intention. The significant impact of perceived behavioral control on continuance intention was confirmed in past works [87,89]. It turns out that the lower the level of perceived behavioral control, the lower the intention to use e-commerce [67]. Consumers may be more likely to use it when they have enough resources and capabilities.

6.2. Demographics and Resultsthe

This paper further considers the findings of the study based on the demographic information of the sample. First, more than half of the respondents were in their 20s and 30s. They are Millennials and Generation Z (collectively MZ), who have relatively low formal salaries compared to Generation X or Baby Boomers. Some college students of the respondents did not have formal salaries. For them, money may be a very important factor in using omnichannel. The results of the study suggest that money savings and perceived risk have a significant effect on relative advantage. This result may be because the majority of respondents are in their 20s and 30s. In South Korea, people in their 20s and 30s have a high level of digital use. They recognize the utility of omnichannel only when they have easy access to it. This resulted in accessibility enhancing perceived ease, perceived usefulness, and relative advantage. Since they are very accustomed to trading activities using information devices, ease, and usefulness do not seem to guarantee continuance intention anymore. On the other hand, they can easily control their behavior regarding omnichannel usage. Furthermore, generation MZ in South Korea is active in social networking. They are easily in touch with other people's opinions. In this context, attitudes and subjective norms influence continuance intention.

Secondly, 84.4% of the respondents had an annual income of less than KRW 5 million. In South Korea, this level of income is classified as low-income or middle-income. They may use omnichannel because it saves expenditure. This indicates that the money-saving and perceived risk influence the continuance intention via the relative advantage.

Finally, 72.9% of respondents had a bachelor's degree or higher. They have completed courses at university institutions. Because they are so accustomed to using information devices, the ease or usability of omnichannel no longer drives their continued intention to use. On the other hand, they are also easy for online commerce and social networking. This is confirmed through the results that attitude, subjective norms, and perceived behavioral control have a significant effect on continuance intention.

6.3. Interview

This study conducted interviews with four of the survey respondents to find out the real meaning of the research results. Putting their stories together, consumers naturally use omnichannel in the process of searching for products. They access Internet portals

or favorite e-commerce sites through mobile phones. Some users access the sales site by clicking on advertisements that appeared while on social media. In only a few scenes above, multiple channels are utilized: web portal, e-commerce, and channels through social media. Consumers who search for a product check several pieces of information to make a decision. They review information on price, purchase reviews, color, size, and fit through multiple channels. At the purchase stage, omnichannel is utilized according to the payment situation of consumers. Consumers who have a credit card VISA would find a channel that provides the benefits of the card. Consumers who have portal mileage may access the associated channels and make purchases. Considering the above process, users use omnichannel for various reasons, such as convenience, price, and utility. In addition, they use omnichannel in all stages of a search, decision, and purchase.

7. Conclusions

7.1. Implications for Theory

This paper makes several academic contributions. First, it comprehensively reflected technological factors (accessibility, perceived ease of use, and perceived usefulness), economic factors (monetary saving), risk-related factors (perceived risk), and behavioral factors (attitude, subjective norms, and perceived behavioral control) to explain continuance intention of omnichannel consumers. Consumers encounter various channels such as smartphones, mobile apps, and websites in the process of purchase. In addition, they carry out planned actions to carry out economic activities. This study contributes to the existing literature in that it performed a multidimensional analysis to describe omnichannel customer behavior. Researchers can use the results of this work to analyze the behavior of omnichannel users in more depth. In addition, they will be able to try to apply other theories, such as the UTAUT [28] or expectation-confirmation model (ECM) [90].

Second, this study contributes to the field of IT by empirically examining the impact of technology acceptance factors on continuance intention. Contrary to the previous studies validating or modifying TAM [26,55,91–94], the results show that perceived ease of use and perceived usefulness do not influence continuance intention. The different findings of this study from previous works can be explained by the following reasons. First, in the current ICT environment, a large number of devices have achieved a sufficient level of ease and usefulness. This means that easiness no longer guarantees continuance intention. Second, consumers mainly use omnichannel in the process of purchasing. Thus, variables such as consumer satisfaction and economic benefits can be stronger and more effective in explicating the omnichannel behaviors specialized in economic activities. Last, the technology acceptance factor may have different effects on the later behavior of the accepted technology. Consistent with the results of this paper, it was revealed that the key factors of behavior vary according to the stage of introduction of e-commerce [60]. Hence, researchers need to additionally discover new variables required for the continuous operation of a platform specialized in consumption activities. More specifically, the insignificant relationship between perceived usefulness and continuance intention can be expounded by the following reasons. Most of the ITs for end users currently on the market are intuitive and easy to use. Omnichannel utilizes various IT devices. Modern omnichannel consumers have a high level of digital device capabilities. In this sense, ease of use no longer seems to drive continuance intention. The insignificant association between perceived usefulness and continuance intention can be attributed to the following facts. This study included both perceived usefulness and relative advantage. Looking at the indicators of both constructs, the relative advantage is more specific to shopping and more comprehensive than perceived usefulness. For this reason, the relative advantage seems to have dominated the role of perceived usefulness. Even if the proposed two paths were rejected, this article contributes to the academic world by confirming that the roles of perceived ease and perceived usefulness can vary depending on the subject and other variables within the model.

Third, this work is meaningful in explaining omnichannel users' intentions by applying the TPB. Omnichannel expands consumers' purchasing pathways by providing a variety of channels. The results of this study show that continuance intention is significantly affected by attitude, subjective norm, and perceived behavioral control. Because omnichannel offers advantages to consumers in terms of choice, price, and efficiency, consumers shape favorable attitudes toward it. Along with this, consumers' acquaintances would have agreed and supported the use of omnichannel. Since using omnichannel does not cost much money or time, consumers can easily control their behavior in using it. Consequently, attitudes, subjective norms, and perceived behavioral control promote continuance intention. Therefore, researchers need to suggest concrete ways to improve consumers' attitudes toward omnichannel. It would be worthwhile to come up with a way to highlight that there are new advantages through omnichannel, such as economic benefits and procedural advantages. Based on the significance of subjective norms, scholars can consider enhancing the continuous intention by utilizing the positive word-of-mouth effect of omnichannel. In addition, it is possible to improve the sustainability of omnichannel in academia by reducing the resources or conditions required to use omnichannel. TPB explains human behavior and consumption as one of representative human activities. On this basis, TPB was also confirmed well in the behavior of omnichannel users. This study has academic significance in that it confirmed and strengthened TPB while elucidating the behavior of omnichannel users.

Fourth, this article makes a valuable contribution by clarifying the role of accessibility in the formation of continuance intention. The analysis results proved that accessibility affects perceived ease of use, perceived usefulness, and relative advantage. In particular, it has a very strong influence on perceived ease of use and perceived usefulness. This may be because omnichannel has the main characteristic of providing multiple channels. Consumers with more access to omnichannel find it very manageable and useful. As such, scholars need to devise multiple measures to enhance the accessibility of omnichannel. Devices used for omnichannel must be able to provide various channels for specific products. The device interface needs to effectively express channel information to realize these functions well. Therefore, the UI/UX of devices used for omnichannel needs to be continuously strengthened.

Fifth, this research provides a new contribution by balancing the factors that shape or hinder the relative advantages of omnichannel. The analysis suggests that accessibility and monetary savings create relative advantages. On the other hand, risk undermines relative advantages. Scholars can design engineering methods to improve channel accessibility. If network stability and information processing capacity are strengthened in the 5G environment, accessibility can be improved.

Last, the present study makes new and remarkable contributions to the sustainability of the economy as follows: It identified the main factors leading to the intention to continue using the omnichannel. Based on the results of this study, researchers can seek various ways to sustain omnichannel. Omnichannel supports companies to provide several channels using information devices. By implementing omnichannel, companies can reduce labor costs, establish more efficient contact points with customers, and ultimately increase sales. Omnichannel effectively supports consumers' decision-making. It allows consumers to see more products, buy them at lower prices, and incur less cost and effort. As mentioned above, omnichannel promotes the sustainability of the economy by providing benefits to both businesses and consumers.

7.2. Implications for Practice

This study provides several practical implications as follows. First, the analysis reveals that accessibility enhances all of omnichannel's ease, usefulness, and relative advantages. Therefore, developers need to continuously build conditions for consumers to access omnichannel more conveniently. In addition, the management will need to make it possible for consumers to access and enjoy various online benefits even in offline stores. This will

positively improve the store experience for consumers, and the results will directly impact corporate sales.

Second, monetary saving raises relative advantage, while risk decreases it. Thus, marketers need to select active consumers and provide monetary benefits such as coupons and mileage. At the same time, it would be beneficial to imprint the benefits of omnichannel by providing full support for subscription gifts or discounts to new customers. The corporate security team must keep customers' personal information and transaction history safe to avoid financial incidents. Recently, spear phishing emails are causing enormous damage. Under these circumstances, it would be effective to run a system that blocks attacks by tracing back the email sender's address in real-time [95,96].

Third, this paper also confirmed TPB in the omnichannel case. Marketers need to promote in various ways by emphasizing that customers can make more effective purchases through omnichannel. They can devise advertisements using celebrities or full economic promotion. Designers should configure customer-friendly UI layouts of apps for consumers to comfortably use omnichannel without many resources.

Finally, the results of this study have practical significance in that they can be applied to public policies such as health and transportation. For example, citizens may want to check various routes to get a corona vaccine. Omnichannel can direct citizens to hospitals that are close to them, have low queues, and prescribe certain types of vaccines. Omnichannel can also be effectively used in the logistics industry. Securing channel diversity is a very important success factor as well. Manufacturers would use the omnichannel platform to investigate and utilize various channels such as train, air, and ship.

7.3. Limitations and Future Research

The limitations of this paper are as follows and the corresponding research direction is also presented. First, this work did not introduce the characteristics of goods traded through the omnichannel. User behaviors of the omnichannel may vary according to the types of goods. In future research, it is necessary to examine omnichannel users by considering the types of goods. Second, the present study surveyed only one country. To improve the generality of results, future studies would be valuable to investigate several countries. Third, this research did not reflect the current characteristics. After the COVID-19 pandemic, human behavior was severely constrained. Consumers' economic activities and purchasing patterns may have also changed. Subsequent studies should additionally reflect these situational factors. Finally, this study did not address the differences between omnichannel users and non-users. Moreover, it failed to consider the dynamic behaviors of omnichannel consumers. Some consumers may have used omnichannel and then quit. To observe the impact of omnichannel in more depth, future research needs to perform a comparison with non-users and observe the behaviors longitudinally.

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Appendix A

Table A1. Definition of Constructs.

Construct	Definition
Accessibility [29]	The degree to which consumers can access several channels using omnichannel (i.e., access timing, connection, and place)
Monetary Saving [97]	The extent to which consumers save money using omnichannel (i.e., lower price and payment cost)
Perceived Risk [40]	Consumers' subjective assessment of the potential unclear negative values from an omnichannel (i.e., monetary transaction and promotional campaign)
Perceived Ease of Use [26]	The extent to which consumers believe that using an omnichannel would be free of effort (i.e., clarity, mental effort, and easiness)
Perceived Usefulness	The degree to which consumers believe that using an omnichannel may improve shopping performance (i.e., usefulness in life, speed, and efficiency)
Relative Advantage [98]	Relative benefits of using omnichannel over other alternatives (i.e., discount, convenience, and variety)
Attitude [34]	Level of positive judgment on omnichannel held by a consumer (i.e., good idea, smart idea, and positive idea)
Subjective Norms [34]	Consumers' belief that the majority of individuals who are significant to them believe they should or should not engage in the omnichannel (i.e., support, understanding, and agreement)
Perceived Behavioral Control [34]	Consumers' belief in their competence to carry out an omnichannel (i.e., ability, confidence, and resources)
Continuance Intention [99]	Degree of intention to continue to use omnichannel (sustainability, increase, and willingness)

Table A2. List of Model Constructs and Items.

Construct	Item	Mean
Accessibility [29]	ACS1	I can easily access omnichannel at any time.
	ACS2	Omnichannel service is well connected between online and offline.
	ACS3	I can get information or make an inquiry from anywhere I want.
Monetary Saving [97]	MOS1	I chose omnichannel because I want to purchase a good quality product at a lower price.
	MOS2	Using an omnichannel service helps me reduce my payment costs.
Perceived Risk [40]	PRS1	I believe that monetary transactions performed on omnichannel services (e.g., payments over the Internet) are risky.
	PRS2	I agree that using omnichannel services to purchase goods and services is risky.
	PRS3	I believe that getting information through omnichannel services and conducting promotional campaigns for products is highly risky.
Perceived Ease of Use [26]	PEU1	Omnichannel services are clear and understandable.
	PEU2	The process of using the omnichannel service does not require much mental effort.
	PEU3	I think the omnichannel service is easy to use
Perceived Usefulness [26]	PUS1	I think omnichannel services are useful in everyday life.
	PUS2	If I use omnichannel services, I can shop faster.
	PUS3	Using omnichannel services improves transaction efficiency.
Relative Advantage [98]	RLD1	Omnichannel offers more discounts than regular shopping methods.
	RLD2	Omnichannel is more convenient than regular shopping methods.
	RLD3	Omnichannel offers a wider variety of products when purchasing online than regular shopping methods.
Attitude [34]	ATT1	I think it's a good idea to participate in omnichannel.
	ATT2	I think it's a smart idea to join an omnichannel.
	ATT3	I think participating in omnichannel is a positive idea.
Subjective Norms [34]	SNO1	People close to me support my use of omnichannel.
	SNO2	People close to me understand my participation in omnichannel.
	SNO3	People close to me agree with my opinion of participating in omnichannel.

Table A2. *Cont.*

Construct	Item	Mean
Perceived Behavioral Control [34]	PBC1	I think I can participate in omnichannel.
	PBC2	I am confident that I can use the omnichannel service if I want.
	PBC3	We have enough resources, time, and opportunities to do omnichannel.
Continuance Intention [99]	COI1	I plan to continue using the omnichannel service in the future.
	COI2	I plan to increase the utilization of omnichannel services in the future.
	COI3	I will continue to use the omnichannel service in the future.

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