



Print ISSN: 1738-3110 / Online ISSN 2093-7717
 JDS website: <http://www.jds.or.kr/>
<http://dx.doi.org/10.15722/jds.20.08.202208.9>

The Impact of Distribution Competence on Customer Value Creation, Competitive Advantage and Performance of Retailers in Omni-channel: A Case in Vietnam

Anh Thi Dy NGUYEN¹, Thao Thi Phuong HOANG²

Received: May 15, 2022. Revised: June 27, 2022. Accepted: August 05, 2022.

Abstract

Purpose: Distribution competence plays a key role in supply chain management. A successful distribution system will bring high values and profit for company. Omni-channel is a modern type of distribution which is used by many companies to access customers more effectively. This research is about the influence of distribution competence on customer value creation, competitive advantage and business performance of retailers in omni-channel. **Research design, data and methodology:** Questionnaires were issued to 200 managers who have experiences in using an Omni-channel to provide consumer goods. PLS-SEM is used to check the relationship among these above factors in omni-channel in Vietnam context. **Results:** Distribution competence has positive direct effect on business performance. At the same time, it has positive indirect effect on business performance through the mediating role of customer value creation and competitive advantage. Moreover, the role of mediating variables make contribution to strengthen the relationship of distribution competence and business performance in omni-channel. **Conclusions:** Through distribution competence, retailers can get competitive advantage, create more values for customers and increase business performance in omni channel in Vietnam.

Keywords: Omni-channel; Distribution competence; Customer value creation; Competitive advantage; Business performance; Vietnam.

JEL Classification Code: M00, M10, M19

1. Introduction

Nowadays, the trend of integrating traditional business with digital platforms is becoming popular and is considered an effective solution to help companies penetrate and expand the market when the country has been increasingly integrating deep into the world economy. One of the most popular channels in recent years has been omni-channel. The omni-channel integrates multiple channels (traditional commerce and e-commerce) in the same transaction process. Customers' information in the purchasing process will be stored so that customers can continue to complete their

orders whenever they want. Customers can choose to pick up their goods in-store or at a designated location (Truong, 2020). This raises administrative and operational problems such as the amount of inventory in stores and distribution centers, the maneuvering of inventory at the storage points, the processing of orders directly at the store and orders online, the transportation maneuvering to ensure the delivery time as required by customers (Perreault & Russ, 1976). These issues belong to the distribution aspect of enterprise, it shows the distribution competence of the enterprise in the market.

1 First Author. Lecturer, Faculty of Commerce, Van Lang University, Vietnam. Email: anh.nguyen@vlu.edu.vn

2 Second Author, Associate Professor Ph.D, Lecturer, Ho Chi Minh City Open University, Vietnam. Email: thao.htp@ou.edu.vn

© Copyright: The Author(s)

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted noncommercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Distribution competence creates time, place, and utility value that are critical to customer service. Distributive function can provide competitive advantages by distinguishing companies with superior service levels, as well as provide the right quantity of product at the right place, time and price to meet customer needs (Mentzer, Flint, & Hult, 2001). It is clear that measuring and evaluating this competence is not simple, especially in the context of today's diversity of distribution channels. Concepts such as traditional distribution channels, multi-channel distribution, cross-channel distribution and, more recently, omni-channels have changed the management and operation of enterprises (Piotrowicz & Cuthebertson, 2014).

When the distribution function of companies operates smoothly, it will create value for customers. Customers can benefit through the results of distribution activities, for example, customers receive more reasonable prices and the relationship between customers and businesses is also longer-lasting (Kotler, Keller, Brady, Goodman, & Hansen 2019). As a result of previous studies, when a business creates value for its customers, it will increase its competitive advantages over its competitors (Porter, 1985).

In 2021, Vietnam is rated as one of the countries with the fastest e-commerce growth in the world. After 20 years of the internet entering Vietnam, Vietnam's e-commerce has developed very quickly and become more and more popular in daily life. The term "omni-channel" has just been appeared for ten years in Vietnam. A number of companies in Vietnam have used this channel to generate their business. The biggest retail trend will be digital transformation, diversifying sales channels, promoting online business in addition to optimizing traditional sales channels (Bui, Hoang, Do, & Duong, 2021). Especially, companies have invested in developing modern distribution channels to meet the requirement of customers during the past two years of the Covid 19 pandemic. The omni-channel has become the necessity in Vietnam in particular and in the world in general.

However, according to Bui et al. (2021), there are some challenges which retailers have to face when operating omni-channel. The first one is how to integrate functions in distribution competence (inventory competence, transportation competence, order management competence, storage point management competence) to operate smoothly and efficiently. The second one is the tradeoff between customer service optimization and logistics cost. The third one is to unify different channels (brick and mortar and online channel) into an exclusive channel which is so called omni-channel. The last one is information technology investment cost to ensure customer shopping experience seamlessly.

Some previous studies show that researchers are interested in distribution, value creation to customers,

competitive advantage and business performance in the omni-channel (O'Cass & Ngo, 2011, Raduan, Jegak, Haslinda & Alimin, 2009, Ekert, 2007). However, these studies have just focused on one or some single aspects of these factors. Moreover, there is not any research related to the relationship among factors of distribution competence on customer value creation, competitive advantage and organizational performance in omni-channel in Vietnam.

Therefore, the aim of this research is to assess the impact of distribution competence on customer value creation, competitive advantage and business performance of retailers in omni-channel. New points of contributions are to find out the role of distribution competence in omni-channel as well as to answer the question how inventory competence, transportation competence, order management competence, storage point management affect the business performance of retailers in omni-channel. Moreover, the new point of this research is to use customer value creation as a mediation variable when considering the impact of distribution competence on competitive advantage and business performance. Base on the results of the research, some solutions are suggested to retailers in omni-channel to operate their activities more efficiently as well as increase their competitive advantage and business performance.

2. Literature Review

2.1. Distribution Competence

Distribution competence is reflected through inventory competence, storage point management competence, order management competence, transportation competence (Bowersox, 1969; Ross & Rogers, 2014).

2.1.1. Inventory Competence

One of the key challenges for supply chain managers is to control inventory competence. When goods arrive at the right customer, inventory is considered useful. But when the inventory is too much or stocking the wrong product, in the wrong place, it will destroy the entire distribution system of a company. Inventory is tied to capital, incurs inventory holding costs, inventory needs to be transported, needs to be stored in a warehouse, needs to be received and handled (Song, Van Houtum, & Van Mieghem, 2020). At the same time, inventory is also associated with the risk of obsolete and expired goods. If not well controlled, inventory can become a financial burden for companies, reduce profits and lose competitive advantages as well as market expansion opportunities.

Becerra and Sanchis (2022) concluded in the article "Sustainable Inventory Management in Supply Chains: Trends and Further Research" that sustainable inventory

management involves inventory, warehousing and material handling decisions by focusing on reducing cost without affecting profitability. It is important to develop an inventory model which takes into account increasing income, preventing waste and reducing costs.

Especially, in omni-channel, the role of inventory competence is more and more important. The matter of great concern is how to ensure the availability of consumer goods as well as how to allocate products properly to avoid stock out or abundance status among stores in the same system (Derhami, Montreuil, & Bau, 2021). Therefore, retailers in omni-channel always lay stress on inventory management capability and regard it as competitive weapon with competitors. (Atnafu & Balda, 2018).

2.1.2. Order Management Competence

According to Ballou (1992), order management process includes order preparation, order delivery, order processing, order status reporting, and order fulfillment. Order preparation refers to activities such as gathering necessary information about desired products and services, filling out order information, reviewing inventory availability, and confirming orders with customers. Order delivery involves transferring required information of an order to the department where the order will be processed. Order processing includes (1) checking order accuracy, such as product description, quantity, price; (2) check inventory availability for delivery; (3) prepare records for processing later delivered orders or order cancellations, if applicable; (4) check credit status of the customer; (5) edit order information, if necessary; (6) make invoice for delivery. Fulfillment of orders includes stages (1) obtaining goods according to customer requirements, (2) packaging, (3) planning for delivery, (4) preparing delivery records. Some activities in order fulfillment run parallel to order processing, thus reducing goods waiting time (Martinez, Zhao, Blujdea, Han, Neely, & Albores, 2019).

The study “Realignment of the physical distribution process in omni-channel fulfillment”, Ishfaq, Defee, Gibson, and Raja (2016) shows that retailers are developing omni-channel distribution which is taking on a greater responsibility for order fulfillment and delivery. The level of online sales, the breadth of the distribution network, the links between the stores, the number of years of operation in the online channel were identified as key factors in determining the method of order fulfillment of the retailer in the omni - channel. The article also highlights that changes in customer behavior force retailers that rely on brick-and-mortar stores to switch to omni-channel by adjusting the distribution process. On that basis, the author proposed future research directions should learn more deeply about factors such as delivery service, order arrangement in order to increase the value provided to customers.

2.1.3. Storage Point Management Competence

Warehouses are seen as temporary storage of inventory and secure inventory in the supply chain. Warehouses play an important role in balancing inventory availability and customer demand, as well as supporting the flow of goods from suppliers to customers, responding to customer needs on time in a cost-effective manner (Van Den Berg, 2013).

Slack, Chambers, and Johnston (2001) introduced a concept of competency in warehouse management that describes: it will take time or effort to redo things that were done wrong before. Warehouse management competence must ensure fast processing of goods according to orders in the warehouse. Interdependent activities must be planned correctly. This prevents the situation of being stuck at a certain stage, making it impossible to complete the order. Warehouse management also has flexibility to adjust to change without affecting the rest of the organization. Economical warehouse management competence leads to higher profits as well as allows the company to sell at a competitive price compared to the competitors.

2.1.4. Transportation Competence

According to Coyle, Novack, Gibson, and Bardi (2016), transportation costs and transportation services will affect product demand. High transportation costs may cause customers to choose a substitute product in a closer location or to choose another transportation provider with lower prices. Characteristics of transportation services include: transit time, reliability, accessibility and safety. Shipping time affects inventory levels. The longer the delivery time, the higher the requirement for available inventory and the higher the cost of holding it. Reliability refers to consistency during transportation. A stable shipping schedule gives shoppers peace of mind and does not have to store much, because the goods will arrive at the set time. Accessibility refers to whether the shipper has the ability to directly reach the location specified by the shopper. Some means of transport such as air freight and sea freight cannot reach the customer's location directly, but only stop at the port. This increases the transfer fee. Meanwhile, transportation competence refers to the ability to meet the specific needs of customers' goods. For example, when the customer wants the goods to be packaged separately and fast delivered, the transportation manager has to consider and calculate the cost and service level. Finally, safety refers to the goods that are not damaged or lost during transportation. This is an important requirement, which largely determines the seller's reputation (Wang & Qu, 2019).

Sousa, Barbosa, Oliveira, Resende, Rodrigues, Moura, and Matoso (2021) suggested in the article “Challenges, Opportunities, and lessons learned: sustainability in Brazilian omni- channel retail” that transportation is a major contributive factor to supply chain efficiency. Research

showed that when a company adopts an omni-channel strategy, there is more trust and cooperation among business partners, maximize cost-benefit ratio and increase speed, visibility, safety and sustainability of all business processes, extending sustainability benefits to the supply chain partners.

2.2. Customer Value Creation

When companies realize the importance of customer perception about value, they must find ways to create that value for customers. In terms of customer value creation, Cao and Li (2015) study on "The impact of cross-channel integration on retailers' sales growth" showed that five mechanisms by which cross-channel integration affects sales growth have been suggested as (1) improved trust, (2) increased customer loyalty, (3) customer conversion rates higher, (4) more cross-sell opportunities, (5) reduce the risk brought by operating a channel. This view is also supported by the study "Integrating online and in-store sales: Results of online and offline channel integration" (Herhausen, Binder, Schoegel, & Herrmann, 2015), which showed the integration of online and offline channels does not negatively affect the particular store. Integrating online and offline channels directly increases the customers' perceived service quality. Integrating online and offline channels is regulated through the customer's Internet shopping experience.

According to O'Cass and Ngo (2011), purpose of creating customer value is (1) to deliver the superior capabilities that the customers are looking for, (2) to provide the price that the customers are willing to pay, (3) to support customers with a convenient shopping experience, and (4) to interact with customers to co-create the consumption experience. On that basis, four aspects that companies can use to customer value creation are: performance value which provide superior performance to meet their explicit and implicit requirements (Afuah, 2002). Price value that means companies often find ways to increase customers' perception of the value received when buying relative to the selling price (Mazumdar & Sinha, 2005; Priem, 2007). Relationship value which includes everything from easy access to the companies at any time, to quick response to any request (Mittal & Sheth, 2001). Co-creation value that means companies encourage customers to create their own value from different activities (O'Cass & Ngo, 2011).

2.3. Competitive Advantage

For aspects of competitive advantage and business performance, the article "Impact of supply chain practices on competitive advantage and performance of enterprises (Li, Ragu, & Rao, 2006) examines three research questions: (1) organizations with a high degree of supply chain

management practice have a high degree of competitive advantage; (2) organizations with a high level of supply chain management practice have a high level of performance; (3) organizations with a high degree of competitive advantage have a high level of performance. This study provides empirical evidence to support the conceptual and regulatory claims in the literature on the influence of supply chain management practices.

In general, competitive advantage is defined as attributes of a company that attract customers; they are potential points of difference from its competitors. Competitive advantage refers to factors which company can use to create a defensive position relative to its competitors. It includes the capabilities that allow a company to differentiate itself from its competitors and is the result of important management decisions (Li et al., 2006). Innis and LaLonde (1994) identified competitive advantage factors that describe a company's ability to satisfy customers including price, product quality, product line breadth, ratio order fill rate, order lead time, order information and delivery frequency. The service quality provides added value for customers and added value is one factor in competitive advantage. Kusumadewi and Karyono (2019) found that sources of competitive advantage are, price/cost, quality, delivery dependability, product innovation and time to market. Based on the above, the dimensions of the competitive advantage include revenue, profit, market share, customer satisfaction in comparison with competitors.

2.4. Business Performance

When considering the aspect of operational performance, the article "Outbound Logistics Performance and Profitability: Taxonomy of Manufacturing and Service Organizations" of Matthew and Miller (2015) pointed out that every business needs to develop distribution activities according to the characteristics of the field of activity and customer needs. Enterprises should assess the needs and expectations of customers, the distribution capacity of the business, as well as the external competitive environment to develop a suitable plan for the business. On the basis of the development of distribution competence, the performance of the enterprise will be improved.

Based on previous definitions, business performance refers to the extent to which a company achieves its market-oriented and financial goals (Li et al., 2006). The short-term goals of supply chain management are essential to improve productivity and to reduce costs and time, while the long-term goals are to increase customer satisfaction, market share, and profit for all members of the supply chain. Pang and Lu (2018) used three aspects to measure business performance, namely financial performance (sales growth, return on investment, earnings per share), performance

result (market share, new product introduction, product quality, marketing effectiveness) and organizational performance (employee morale, work atmosphere, customer satisfaction).

2.5. Research Model and Hypothesis

The research hypotheses are developed based on the above literature review as follows:

2.5.1. Distribution Competence and Creating Value for Customers

Inventories bring value in terms of product availability to customers (Ballou, 2010). In turn, customers contribute to co-creating value, helping businesses forecast and manage inventory more accurately.

The ability of managing orders helps add value to customers when goods are delivered faster, where and when customers need them. At the same time, the order management competence can be shown through the goods return policy. When order management competence is high, the value of this function to customers will increase (Verhoef & Lemon, 2016).

Storage point capabilities (warehouses, distribution centers) have an impact on creating value for customers. Today, the warehouse plays an important role in delivering the right product in the right quantity and quality to the right customer at the right price. Delivering goods at the right price requires that warehouse management must achieve economic competence to create value worth the money customers pay for service.

Transportation competence refers to the ability to meet the specific needs of customers' goods. Transportation competence is measured by Ross and Roger (2014) based on the following criteria: delivery speed, completion of transportation, transport capacity, competence to manage means of transport, and transport costs. Vehicle management competence aims to evaluate whether the enterprise is making good use of the means of transport.

In brief, distribution competence including ability of inventory, order management, storage points and transportation may impact on creating customer value even in the omni-channel. The proposed hypothesis is:

H1: There is a positive impact of a retailer's distribution competence on its customer value creation in the omni-channel.

2.5.2. Distribution Competence and Competitive Advantage

Inventory competence ensures product availability. It also demonstrates the ability to meet customer requirements in terms of quantity, quality and time (Ballou, 2010).

Transportation competence contributes to creating competitive advantages of enterprises (Helmy, ElMokadem, Abd el Bary, & El-Sayeh, 2018). Besides, the ability to manage orders will increase customer satisfaction and loyalty. Customer loyalty is considered one of the competitive resources of enterprises (Barney, 1991). Moreover, the ability to manage storage points ensures that goods are well preserved, in sufficient quantity to supply to customers, saving delivery time. These factors help companies increase their competitive advantages over competitors (Guarda, Santos, Pinto, Augusto, & Silva, 2013). A company must keep the cost low enough to charge a competitive price in comparison with that of a competitor, or the products provided must bring higher value than the competitors if it wants to offer higher price. Product quality and diverse product lines must meet or exceed customer expectations. The retailer should have high order fill rates, short order cycle times, accurate order and delivery information, and regular deliveries. These capabilities will enable companies to achieve high levels of customer satisfaction and market efficiency. So, the proposed hypothesis is:

H2: There is a positive impact of a retailer's distribution competence on its competitive advantage in the omni-channel.

2.5.3. Customer Value Creation and Competitive Advantage

O'Cass and Ngo (2011) proposed that the purpose of creating customer value is (1) to deliver the superior capabilities that the customers are looking for, (2) to provide the price that the customers are willing to pay, (3) to support the customers with a convenient shopping experience, and (4) to interact with customers to co-create the consumption experience. Thereby, company will improve operational performance, increase customer satisfaction and loyalty.

Barney (1991) argued that a company will gain a sustainable competitive advantage over its competitors if its resources meet the following four criteria: valuable, rare, inimitable, non-existent replaceable. When company provides unique, useful value to its customers, it will create a valuable competitive advantage. Therefore, a retailer in the omni-channel may increase competitive advantage by creating value for customers. The next hypothesis is:

H3: There is a positive impact of a retailer's customer value creation on its competitive advantage in the omni-channel.

2.5.4. Customer Value Creation and Business Performance

According to O'Cass and Ngo (2011), companies create

four kinds of values for customers: performance value, price value, relationship value, and co-creation value. The performance value is measured through how well the company meets customer needs, exceeds customer expectations, and continuously improves. When the performance value is high, company will have the opportunity to increase profits and revenue. Price value shows customers ‘satisfaction between the cost they spend and the value brought to them. Price value helps company increase customer loyalty. Value of the relationship shows that company is eager to favorably cooperate and support customers to ensure customers to satisfy with the service quality. Co-creation value connects company with customers, understand customer needs, co-thinking with customers and then produce high value products that meet customer expectations. On that basis, the hypothesis is built as follows:

H4: There is a positive impact of a retailer’s customer value creation on its business performance in the omni-channel.

2.5.5. Competitive Advantage and Business Performance

Raduan et al. (2009) concluded that there is a closed relationship between competitive advantage and business performance. They suggested that the resource-based view (RBV) of a firm's competitive advantage is one of the keys to strategic management theories regarding the interpretation of organizational performance. Competitive advantage is a concept that can be used as a guideline for business activities in particular and for performance in general (Majeed, 2011). Competitive advantage based on the RBV perspective not only demonstrates the capabilities of company, but also aims to explain the larger picture of business performance (Raduan et al., 2009). Especially in omni-channel, the increase in competitive advantage will help company improve business performance (Alqararah & Daud, 2021). From the above points of view, the following hypothesis is proposed as:

H5: There is a positive impact of a retailer’s competitive advantage on its business performance in the omni-channel.

2.5.6 Distribution Competence and Business Performance

Inventory competence has an effect on business performance (Ross & Roger, 2014). With more accurate inventory forecasting, operating costs are reduced, sales are improved, profits are increased, and market share is expanded (Eckert, 2007).

Fast, accurate order processing and reasonable procedures help to reduce customer complaint rate and

reduce goods return. Thanks to good order processing competence, company can improve operational efficiency by reducing costs and increasing profits (De Gooijer, 2000).

Efficient use of storage space, reasonable storage locations, accurate delivery and quality assurance are the characteristics of good warehouse management competence, through which, corporate performance is improved (Slack et al., 2001).

When referring to transportation competence, cost is an issue to consider. Although the value of time and place is essential in marketing, it comes at the expense of a lot of costs associated with transportation. Direct cost and indirect costs of the carrier such as the cost of loading/ unloading goods, insurance costs and inventory costs during transportation. All these above distribution factors may affect directly to business performance of an enterprise operating in the omni-channel. The following research hypothesis is:

H6: There is a positive influence of a retailer’s distribution competence on its business performance in the omni-channel.

On the basis of six hypotheses, the research model is suggested in Figure 1. Distribution competence are reflected by four abilities which indirectly are related to business performance through the mediating role of customer value creation and competitive advantage (H1, H2, H4, H5). Besides, distribution competence directly associates with business performance (H6). The two meditation variables have positively connected together.

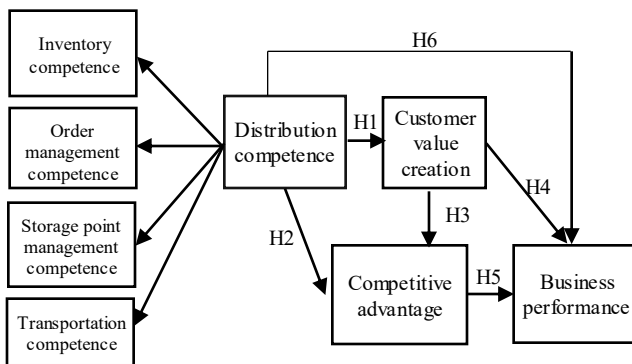


Figure 1: Research model

For more details, table 1 summarizes six hypotheses that should be examined in this research.

Table 1: Summaries of Hypotheses

H1: There is a positive impact of a retailer's distribution competence on its customer value creation in the omni-channel.
H2: There is a positive impact of a retailer's distribution competence on its competitive advantage in the omni-channel.
H3: There is a positive impact of a retailer's customer value creation on its competitive advantage in the omni-channel.
H4: There is a positive impact of a retailer's customer value creation on its business performance in the omni-channel.
H5: There is a positive impact of a retailer's competitive advantage on its business performance in the omni-channel.
H6: There is a positive influence of a retailer's distribution competence on its business performance in the omni-channel.

3. Research Methods and Materials

Quantitative approach was used to conduct this research. The review of previous empirical research will be fundamental for developing observable items of the constructs in the research model. All items were established from theory foundation. Distribution competence is second – order construct, while customer value creation, competitive advantage and business performance are first order construct. The items ‘translation from English to Vietnamese were in charge by English teacher. Pilot test was carried out to adjust items in the questionnaire in the last. The quantitative research was applied by using convenient sampling survey. The survey was carried out strictly and in the correct process.

A Vietnamese formal questionnaire with 37 measurement items was set up to measure the dimensions of distribution competence, customer value creation, competitive advantage, and business performance. Among them, four dimensions of the distribution competence were measured by inventory competence, order management competence, transportation competence and storage point management. The first dimension of inventory competence was measured by 4 items. The second dimension of order management was measured by 5 items. The third dimension of storage point management competence was measured by 5 items. The fourth dimension of transportation competence was measured by 4 items. Similarly, 9 items were used to measured customer value creation, 5 items were used for measuring competitive advantage and 5 items were used for measuring business performance. A 5-point Likert scale (from strongly disagree to strongly agree) was used to indicate the level of respondent’s agreement with each item. The self-administered questionnaire was designed as a data collection instrument to take advantage of closed-end questions. The list of 250 retail companies in the Vietnam

omni-channel was built based on the official information from Ho Chi Minh Development and Research Institute. As Ho Chi Minh Development and Research Institute is a scientific research organization which has legal status and belongs to Ho Chi Minh city People’s Committee in Vietnam, it can ensure the exact and objective of collected information.

The research sample elements were based on these criteria to be selected. Respondents were the managers of companies in the omni-channel who are daily operating in the Vietnam omni-channel. They know clearly about each function of distribution system and understand deeply about consumer market and competitors. A sample of 250 managers of 250 retail companies was targeted, and a total of 200 questionnaires were completed with a high return rate of 91%. The research sample of 200 respondents was used for further statistical analysis.

According to research carried out by Tran (2012), retailers in Vietnam has almost focused on some sectors such as food and drink, technology, cosmetic, fashion, medical, appliances. Therefore, to ensure the generalization of sample, this research is carried out with fully representatives of retail sectors. Table 2 is used to describe sample characteristics which include retail sector and number of years operating in omni-channel in Vietnam.

Table 2: Sample description

	Retailers' characteristics	Quantity	Ratio	Total
Retail sector	Technology	24	12%	100%
	Fashion	37	18.5%	
	Food and drinks	52	26%	
	Cosmetic	20	10%	
	Appliances	23	11.5%	
	Medical (drugstores)	18	9%	
	Others (stationery, souvenir, etc)	26	13%	
Number of years operating in omni -channel	Under 3 years	69	34.5%	100%
	From 3 to 6 years	105	52.5%	
	Above 6 years	26	13%	

A Structural Equation Model (SEM), a multivariate technique based on the combination of both factor analysis and regression, has been considered a data analysis tool. There are two methods: covariance-based techniques (CB-SEM) and variance-based partial least squares (PLS-SEM). However, PLS-SEM provides more advantages for researchers when dealing with i) non-normality data set ii) minimum demand for sample size. Therefore, PLS-SEM is superior to CB-SEM in this research.

4. Results and Discussion

4.1. Evaluation of the measurement model

The requirements of evaluating measurement model include: internal consistency reliability, indicator reliability, convergent validity, discrimination validity. In particular, Cronbach’s alpha (CA) must be more than 0.6 and composite reliability (CR) must be more than 0.7 (Hair, Randolph & Chong, 2014). Moreover, indicator reliability must be more than 0.5, this means outer reliability should be more than 0.7. In addition, Average Variance Extracted (AVE) is greater than 0.5 to confirm the reliability and the convergent validity of the scale (Hair et al., 2017). This research also uses Heterotrait-monotrait ratio; Fornell-Lacker and Cross Loadings to analyze discriminant validity.

The results presented in table 3 shows Cronbach alpha of all factors are higher than 0.7 and AVE are higher than 0.7. This means the internal consistency reliability and convergent validity of these constructs are obtained.

Table 3: Construct Reliability and Convergent Validity

	Cronbach's Alpha	Composite	Average Variance
		Reliability	Extracted (AVE)
Competitive advantage	0.848	0.934	0.826
Customer value creation	0.844	0.922	0.703
Distribution competence	0.781	0.903	0.953
Business Performance	0.857	0.915	0.676

Table 4 refers to Fornell- Larcker criteria. According to these criteria, \sqrt{AVE} of each construct is more than correlation value of this construct with others in the research model. The results prove that all \sqrt{AVE} in the cross line higher than correlation coefficient of each constructs couple.

Table 4: Fornell – Larcker Criterion

	CA	CVC	DC	BP
Competitive advantage (CA)	0.861			
Customer value creation (CVC)	0.268	0.798		
Distribution competence (DC)	0.250	0.299	0.781	
Business performance (BP)	0.455	0.363	0.402	0.827

Table 5 shows HTMT values are less than 0.85. This indicates that each construct is distinguished with other one. In brief, the information in table 4 and table 5 prove discriminant validity of the measurement model achieved.

Table 5: Discrimination validity by Heterotrait-Monotrait Ratio (HTMT)

	CA	CVC	DC	BP
Competitive advantage (CA)				
Customer value creation (CVC)	0.288			
Distribution competence (DC)	0.264	0.312		
Business performance (BP)	0.503	0.398	0.436	

With results discussed above, this measurement model is accepted for further steps.

4.2. Evaluation of the Structural Model

The criteria to evaluate structural model in PLS-SEM are: Collinearity assessment, coefficients of determination (R^2), predictive relevance (Q^2), size and significance of path coefficients, f^2 and q^2 effect sizes.

The results show that all variables in the research model are in the permitted scope. Specifically, VIF values range from 1.00 to 1.148 less than 5 so there is no problem with collinearity (Hair et al., 2017).

The model needs to be re-tested for reliability by using bootstrapping with a repeated sample size of 500. The estimated results from 500 observations indicate that the original weight has significant meaning for the average weight of bootstrapping because all weights are within the 95% confidence interval. Thus, the estimates of the model are reliable.

The R^2 value ranges from 0% to 100%, the larger the R^2 value, the higher the predictive accuracy of the research model. Actually, $R^2 = 0.75, 0.50,$ and 0.25 values are considered significant, moderate, and weak (Hair et al., 2017; Henseler, Ringle, & Sinkovics, 2009). Though, according to Hair et al. (2017), in the consumer goods sector research, a value of $R^2 = 0.20$ is considered high. The R^2 values in the research model are relatively high which ranging from 0.094 to 0.968, showing the accurate prediction of the research model.

According to Cohen (1988), the values $f^2 = 0.02, 0.15$ and 0.35 are considered to be small, moderate and significant. If the value of f^2 is less than 0.02, it is considered that the independent variable has no effect on the dependent variable. The f^2 values in this research vary from 0.035 to 0.153 that mean all independent variables have an average influence on the dependent variable.

Similarly, Geisser (1974) proposed to use Q^2 value to evaluate the significance of the dependent variable in the research model. In the structural model, the dependent variable is significant in the research model when the value of Q^2 of the dependent variable is greater than 0. All values of Q^2 ranging from 0.074 to 0.591 are greater than zero, showing that the model is significantly predictive.

Testing the hypothetical model that the study sets out are eligible to accept and confirm the positive relationship between the factors proposed and included in the PLS-SEM model. Thus, the study achieves the objectives set out in examining the influence of distribution competence on creating value for customers, competitive advantage and performance of retailers in the omni-channel in Vietnam.

Table 6: Hypotheses conclusion by bootstrapping test

	Original Sample	Mean	T Statistics	P Values	Hypotheses
DC->CVC	0.299	0.307	4.531	0.000	H1: Accepted
DC->CA	0.186	0.188	2.157	0.031	H2: Accepted
CVC->CA	0.212	0.217	2.949	0.003	H3: Accepted
CVC->BP	0.195	0.203	3.376	0.001	H4: Accepted
CA->BP	0.338	0.339	5.364	0.000	H5: Accepted
DC->BP	0.259	0.256	4.017	0.000	H6: Accepted

Table 7: Indirect specific effect

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
DC->CA->BP	0.063	0.064	0.034	1.881	0.034
DC->CVC->BP	0.058	0.062	0.022	2.615	0.026
DC->CVC->CA->BP	0.021	0.022	0.009	2.264	0.024

Table 8: Indirect total effect

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
DC->CA	0.250	0.254	0.084	2.983	0.003
DC->BP	0.402	0.404	0.065	6.159	0.000

Table 6 shows that all hypotheses are accepted at p value less than 0.05. Specifically, distribution competence has significant positive effect on creating value for customers ($\beta = 0.299$, $p = 0.000$); the impact of competitive advantage on performance has $\beta = 0.338$ and the impact of distribution competence on performance has $\beta = 0.259$. Thus, the analysis results show that the impact of the factors together according to the research model is completely statistically significant. These hypotheses are still accepted after bootstrapping with p value equal to 5%.

Table 7 examines the indirect effect among factors in research model. Specifically, there is the impact of distribution competence on business performance through the mediating of competitive advantage with p value equal to 0.034. Similarly, the impact of distribution capability on business performance through the mediating role of customer value creation is 0.041 with p value equal to 0.026.

Hence, there are mediating effects among constructs, however, the level of indirect impact is not as high as the direct effect.

Table 8 shows the total indirect effects. The impact of distribution competence on competitive advantage through the mediating role of customer values creation has $\beta = 0.250$. This result is greater than the direct effect of distribution competence on competitive advantage ($\beta = 0.186$). Similarly, the impact of distribution competence on business performance through the mediating role of competitive advantage and customer values creation has $\beta = 0.402$. This effect level is higher than the level of direct effect between distribution competence and business performance ($\beta = 0.259$). Therefore, the role of mediating variables make contribution to strengthen the relationship of distribution competence and business performance in omni-channel.

4.3. Discussion

The findings show a positive relationship between the distribution competence of the company and the creation of value for customers in the omni-channel in Vietnam context. The results of this study are consistent with the views of previous studies. Ballou (2010) recognized that distribution competence (including inventory competence, order management competence, inventory management competence, transportation competence) has a positive impact on customer service quality, save costs and better meet customer needs. Similarly, Hübner, Holzapfel, and Kuhn (2016) show that the integration of traditional and online channels will bring systematic benefits in terms of both the distribution activities and the customer service. Increasing delivery speeds and service levels are key issues in omni-channel distribution. Besides, distribution competence has a positive effect on the competitive advantage of retail businesses in the omni-channel. Previous studies also showed a positive effect of this relationship between providing good quality delivery services and competitive advantage.

With the significance level $p = 0.001$, there is a positive influence of creating value for customers on the business performance. When retailers create good values for customers, some operational results such as revenue and profit also increase accordingly.

With the significance level $p = 0.000$, competitive advantage has a great influence on the performance of the retailers. The result concurs with Majeed's study in 2011 which proves that competitive advantage is a concept that can be used as a guideline for business activities in particular and for business performance in general.

With an impact level of 0.223 and p value of 0.001, distribution competence has a great influence on the business performance of retailers. Thus, the results prove the

initial hypothesis is appropriate. Obviously, there is a relationship between the distribution competence and the performance of the company. Efficient use of space at the point of storage, reasonable storage location, accurate delivery of goods, quality assurance are characteristics of management competence (Slack et al., 2001).

5. Conclusions

Overall, distribution competence has an impact on customer value creation, competitive advantage, and business performance in Vietnam omni-channel. These research results make contribution to enhance previous studies related to omni-channel. Obviously, through distribution competence, the use of omni-channel helps retailers get competitive advantage as well as increase business performance. Omni-channel in Vietnam has the same development trend with other countries in the world. Omni-channel harmonizes traditional and modern channel which makes a sustainable development in the future.

In comparison with traditional channel and multi-channel, omni-channel proves outstanding advantages. Customers can order product on website and select receiving place. Customers also change or return products at any shops in the same system which cannot be carried out if they use traditional channel or multi-channel. This thanks to the integration of channels in the unique system of omni-channel. The research also proves how distribution competence supports customer value creation, competitive advantage, and business performance of retailers in Vietnam omni-channel. To ensure that, managers should take more consideration on functions of distribution activities in omni-channel. In order to promote distribution competence, it is necessary to promote the effectiveness of inventory competence, order management competence, inventory management competence, transportation competence in order to make the management more efficient and accurate. Truong (2020) also had the same opinion when admitting the positive linkages between perceived value of shopping in omni-channel shopping intention. As a result, it has a positive effect on business performance of retailers.

Creating value for customers is measured through factors of distribution performance, price, relationship and co-creation value. The public and transparent pricing policy also helps customers feel secure in shopping. At the same time, the service during and after the sale helps to maintain the relationship between the retailer and the customer.

To further promote business performance, retailers need to focus on factors related to distribution competence, creating value for customers as well as promoting competitive advantage of the enterprise. The business performance will be enhanced when managers focus on

improving these factors. Managers need to focus on promoting distribution competence through inventory management, order management, transportation and point of storage. At the same time, adding value to customers and investing in IT are also issues that need attention.

References

- Afuah, A. (2002). Mapping technological capabilities into product markets and competitive advantage: The case of cholesterol drugs. *Strategic Management Journal*, 23(2), 171-179. <https://doi.org/10.1002/smj.221>
- Alqararah, E. A., & Daud, W. M. N. B. W. (2021). An empirical study of the effect of IT-enabled organizational intangibles on competitive advantage and performance. *International Journal of Information Technology and Language Studies*, 5(1), 52-61.
- Atnafu, D., & Balda, A. (2018). The impact of inventory management practice on firms' competitiveness and organizational performance: Empirical evidence from micro and small enterprises in Ethiopia. *Cogent Business & Management*, 5(1), 1-16. <http://dx.doi.org/10.1080/23311975.2018.1503219>
- Ballou, R.H. (1992). *Business Logistics Management*. Prentice Hall Publisher, 3rd edition.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99-120. <https://doi.org/10.1177%2F014920639101700108>
- Becerra, P., Mula, J., & Sanchis, R. (2022). Sustainable Inventory Management in Supply Chains: Trends and Further Research. *Sustainability*, 14(5), 2-19. <https://doi.org/10.3390/su14052613>
- Bowersox J. D (1969). Physical Distribution Development, Current Status, and Potential. *Journal of Marketing*. <https://doi.org/10.1177/002224296903300111>
- Bui, T.T, Hang, H.T, Ninh, D.T.H, Hong, D.N, & Y, H.N.N (2021). *Digital-platform-based commercial business of Vietnamese retail enterprises before and during Covid-19 epidemic*. Ho Chi Minh Economic University Publisher, 41, 643-682.
- Cao, L., & Li, L. (2015). The impact of cross-channel integration on retailers' sales growth. *Journal of retailing*, 91(2), 198-216. <https://doi.org/10.1016/j.jretai.2014.12.005>
- Cohen, J. (1988). Set correlation and contingency tables. *Applied psychological measurement*, 12(4), 425-434. <https://doi.org/10.1177%2F014662168801200410>
- Coyle, J.J, Novack, R.A, Gibson, B & Bardi, E.J (2016). *Transportation: A Supply Chain Perspective*. South Western Cengage Learning.
- De Gooijer, J. (2000). Designing a knowledge management performance framework. *Journal of knowledge Management*, 4(4), 303-310. <http://dx.doi.org/10.1108/13673270010379858>
- Derhami, S., Montreuil, B., & Bau, G. (2021). Assessing product availability in omnichannel retail networks in the presence of on-demand inventory transshipment and product substitution. *Omega*, 102(4), 1-25. <http://dx.doi.org/10.1016/j.omega.2020.102315>

- Eckert, S. G. (2007). Inventory management and its effects on customer satisfaction. *Journal of Business and Public Policy*, 1(3), 1-13.
- Geisser, S. (1974). A predictive approach to the random effect model. *Biometrika*, 61(1), 101-107. <https://doi.org/10.1093/biomet/61.1.101>
- Guarda, T., Santos, M., Pinto, F., Augusto, M., & Silva, C. (2013). Business intelligence as a competitive advantage for SMEs. *International Journal of Trade, Economics and Finance*, 4(4), 187-190. <http://dx.doi.org/10.7763/IJTEF.2013.V4.283>
- Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial management & data systems*, 117(3), 442-458. <https://doi.org/10.1108/IMDS-04-2016-0130>
- Helmy, K. A., ElMokadem, M. Y., Abd el Bary, A., & El-Sayeh, M. (2018). The Impact of Logistics Performance on Competitive Advantage: The Case of Freight Transportation in Egypt. *Journal of WEI Business and Economics April*, 7(1), 33-47.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *New challenges to international marketing*, 20, 277-319. [https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014)
- Herhausen, D., Binder, J., Schoegel, M., & Herrmann, A. (2015). Integrating bricks with clicks: retailer-level and channel-level outcomes of online-offline channel integration. *Journal of retailing*, 91(2), 309-325. <https://doi.org/10.1016/j.jretai.2014.12.009>
- Hübner, A., Holzapfel, A. & Kuhn, H. (2016). Distribution systems in omni-channel retailing. *Business Research*, 9(2), 255-296. <https://doi.org/10.1007/s40685-016-0034-7>
- Innis, D. E. & La. Londe, B.J. (1994). Customer service: The key to customer satisfaction, customer loyalty, and market share. *Journal of Business Logistics*, 15(1), 86-94.
- Ishfaq, R., Defee, C. C., Gibson, B. J., & Raja, U. (2016). Realignment of the physical distribution process in omni-channel fulfillment. *International Journal of Physical Distribution & Logistics Management*, 46(6), 543-561. <http://dx.doi.org/10.1108/IJPDLM-02-2015-0032>
- Kotler, P., Keller, K., Brady, M., Goodman, M., & Hansen, T. (2019). *Marketing Management*. European Edition. Pearson UK.
- Kusumadewi, R. N., & Karyono, O. (2019). Impact of Service Quality and Service Innovations on Competitive Advantage in Retailing. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 2(2), 366-374. <http://dx.doi.org/10.33258/BIRCI.VI.306>
- Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S., & Rao, S. S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega*, 34(2), 107-124. <https://doi.org/10.1016/j.omega.2004.08.002>
- Majeed, S. (2011). The impact of competitive advantage on organizational performance. *European Journal of Business and Management*, 3(4), 191-196.
- Martinez, V., Zhao, M., Blujdea, C., Han, X., Neely, A., & Albores, P. (2019). Blockchain-driven customer order management. *International Journal of Operations & Production Management*, 39(6), 990-1032. <https://doi.org/10.1108/IJOPM-01-2019-0100>
- Matthew, J. L & Miller T. (2016). Outbound Logistics Performance and Profitability: Taxonomy of Manufacturing and Service Organizations. *Business and Economic Journal*, 7(2), 1-9, doi:10.4172/2151-6219.1000221
- Mazumdar, T., S. P. & Sinha, I. (2005). Reference price research: review and propositions. *Journal of Marketing*, 69(1), 84-102. <https://doi.org/10.1509%2Fjmk.2005.69.4.84>
- Mentzer, J.T., Flint, D.J., & Hult, G.T.M. (2001). Logistics service quality as a segment-customized process. *Journal of Marketing*, 65(4), 82-104. <https://doi.org/10.1509%2Fjmk.65.4.82.18390>
- Mittal, B. & Sheth, J. N. (2001). *Value Space: Winning the Battle for Market Leadership*. New York: McGraw-Hill.
- O' Cass, A., & Ngo, L.V (2011). Market orientation versus innovative culture: two routes to superior brand performance. *European Journal of Marketing*, 41(7), 868-887. <https://doi.org/10.1108/03090560710752438>
- Pang, K., & Lu, C. S. (2018). Organizational motivation, employee job satisfaction and organizational performance: An empirical study of container shipping companies in Taiwan. *Maritime Business Review*, 3(1), 36-52. <https://doi.org/10.1108/MABR-03-2018-0007>
- Perreault Jr, W. D., & Russ, F. A. (1976). Physical Distribution Service in Industrial Purchase Decisions. *Journal of marketing*, 40(2), 3-10. <https://doi.org/10.2307/1251000>
- Piotrowicz, W., & Cuthbertson, R. (2014). Introduction to the Special Issue Information Technology in Retail: Toward Omnichannel Retailing. *International Journal of Electronic Commerce*, 18(4), 5-16. <http://doi.org/10.2753/JEC1086-4415180400>
- Porter, M. E. (1985). Technology and competitive advantage. *Journal of business strategy*, 5(3), 60-78. <https://doi.org/10.1108/eb039075>
- Priem, R. L. (2007). A consumer perspective on value creation. *Academy of management review*, 32(1), 219-235. <http://dx.doi.org/10.5465/AMR.2007.23464055>
- Raduan, C. R., Jegak, U., Haslinda, A., & Alimin, I. I. (2009). Management, strategic management theories and the linkage with organizational competitive advantage from the resource-based view. *European Journal of Social Sciences*, 11(3), 402-418.
- Ross, D. F., & Rogers, J. (2014). *Distribution: planning and control*. London: Chapman & Hall.
- Slack, N., Chambers, S., & Johnston, R. (2001). *Operations Management*. Prentice-Hall, Harlow, 3rd edition.
- Song, J. S., Van Houtum, G. J., & Van Mieghem, J. A. (2020). Capacity and inventory management: Review, trends, and projections. *Manufacturing & Service Operations Management*, 22(1), 36-46. <https://doi.org/10.1287/msom.2019.0798>
- Sousa, P. R. D., Barbosa, M. W., Oliveira, L. K. D., Resende, P. T. V. D., Rodrigues, R. R., Moura, M. T., & Matoso, D. (2021). Challenges, Opportunities, and lessons learned: Sustainability in Brazilian omnichannel retail. *Sustainability*, 13(2), 1-17. <https://doi.org/10.3390/su13020666>
- Tran, T.A (2012). The trends of retail market in Vietnam. *Journal of Ho Chi Minh City Open University*, 7(1), 87-93.
- Truong, T. H. H. (2020). The drivers of omni-channel shopping intention: a case study for fashion retailing sector in Danang.

Vietnam. *Journal of Asian Business and Economic Studies*, 28(2), 143-159. <https://doi.org/10.1108/JABES-05-2020-0053>.

Van den Berg, H. (2013). Three shapes of organisational knowledge. *Journal of Knowledge Management*, 17(2), 159-174. <https://doi.org/10.1108/13673271311315141>

Verhoef, P. C., & Lemon, K. N. (2016). Understanding customer experience throughout the customer journey. *Journal of marketing*, 80(6), 69-96. <https://doi.org/10.1509%2Fjmk.15.0420>

Wang, S., & Qu, X. (2019). Blockchain applications in shipping, transportation, logistics, and supply chain. *Smart transportation systems 2019*, 149, 225-231, Springer, Singapore. https://doi.org/10.1007/978-981-13-8683-1_23

Appendix

QUESTIONNAIRE

1 – 5: from strongly disagree (1) to strongly agree (5)

Inventory competence scale

	Content
1	Goods in stock ensure sufficient quantity to supply to customers.
2	Goods in stock to ensure quality (not damaged, expired,...).
3	Businesses have the ability to accurately forecast inventory to serve customers buying in-store and buying online by omni channel.
4	Uninterrupted flow of goods between locations in an omni-channel distribution network.

Order management competence scale

	Content
1	Enterprises provide complete information about products to customers through their website and in stores.
2	Enterprises create favorable conditions for customers to place orders easily through the website and at the store.
3	Enterprises allow customers to order on the website and pick up goods at the store in the retail system
4	The enterprise allows customers to return goods at any store in the system.
5	Enterprises have the ability to handle customer complaints about orders well.

Inventory management competence scale

	Content
1	Order processing speed at the point of storage is fast.
2	Goods are moved safely inside the storage point.
3	Goods are properly packed, packed and labeled.
4	The conditions of the storage point (temperature, humidity, etc.) ensure the safety of the goods.
5	Sufficient storage point space to serve omni-channel goods needs (online and in-store)

Transportation competence scale

	Content
1	The business ensures on- time delivery (no late delivery).

2	The enterprise ensures the delivery of goods to the designated place.
3	The rate of goods damaged during transportation is low.
4	Enterprises' ability to meet the specific needs of customers (requirements on delivery time, delivery speed, ...).

Customer value creation scale

	Content
1	The business ensures to meet the requirements of customers
2	The company guarantees the quality of the goods.
3	The company ensures reasonable prices for customers.
4	Enterprises strictly implement the commitments on pricing policy with customers.
5	Does the business keep in contact with customers throughout the transaction process.
6	Businesses maintain long-term relationships with customers.
7	Businesses work together with customers to provide products that match customer requirements .
8	Enterprises coordinate with customers to provide appropriate services to customers.
9	Enterprises create conditions for customers to contribute ideas to improve service quality.

Competitive advantage scale

	Content
1	Over the past three years, has your competitive advantage over your closest competitor improved?
2	Over the past three years, has the change in market share compared to your closest competitor improved?
3	Over the past three years, the change in profitability relative to your closest competitor has improved
4	Over the past three years, has the change in sales compared to your closest competitor increased?
5	Over the past three years, the change in customer satisfaction compared to the nearest competitor has improved

Performance Scale

STT	Content
1	In the last three years, the enterprise 's market share has improved significantly.
2	In the last three years, corporate profits are increasing.
3	In the last three years, the revenue of the business is increasing.
4	In the last three years, customer satisfaction with the business has increased significantly (through the number of returned orders, the number of customer complaints is less).
5	Overall, over the past three years, the business's performance has improved