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The effects of IT capability and distribution competence on business performance of retailers in Omnichannel

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Background: Nowadays, customers expect to have a seamless shopping experience, whether on an e-commerce platform or in brick-and-mortar stores. This requires the combination of online and offline businesses in a unique channel called Omnichannel. To operate Omnichannel efficiently, the role of information technology (IT) and distribution activities is so essential. Thus, this research evaluates the effects of IT capability and distribution competence on business performance in Omnichannel.

Aim: This research aims to examine the direct effects of distribution competence and IT capability on the business performance of retailers in Omnichannel. At the same time, it also considers the indirect effects of these relationships through the mediating roles of customer value creation and competitive advantage.

Setting: The data used were directly collected from 200 managers operating Omnichannel in the retail sector.

Methods: Quantitative research was conducted to measure the effects of independent variables, including IT capability, distribution competence, customer value creation and competitive advantage on the dependent variable, which is business performance. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to check the relationships among these factors in the context of Omnichannel in Vietnam.

Results: Information technology capability and distribution competence have a direct impact on business performance, with beta coefficients of 0.198 and 0.271, respectively. Meanwhile, the regression coefficients of indirect relationships through mediating variables are 0.204 and 0.097, respectively.

Conclusion: Information technology capability and distribution competence play key roles in the retail supply chain, especially in Omnichannel. To maintain the effectiveness of business operations, increase customer value and enhance competitive advantage, retailers should generate the efficiency of IT and distribution functions.

Contribution: Omnichannel is a relatively new channel in Vietnam. However, this is an essential trend in society. To develop this business model, IT capability and distribution competence are two vital elements. This research helps retailers operating in Omnichannel examine their business performance as well as their positions in competitive environment. On that basis, some solutions are suggested to improve their capacity and optimise resources in Omnichannel.

Keywords: distribution competence; IT capability; customer value creation; competitive advantage; business performance; Omnichannel.

Introduction

In today's economic environment, measuring performance is a matter of interest to academicians and business managers. Business performance is a measure of the results generated by business activities and brings profits to an organisation (Kristinae, Sambung & Sahay 2019; Yaskun et al. 2023). One of the key factors affecting business performance and competitive advantages is the information technology capability (ITC) (Chaisit et al. 2020). Within an organisation, information technology (IT) competence is seen as a valuable resource and plays a significant role (Tarigan, Jiputra & Siagian 2021).

Cooperating with IT capability, distribution competence also plays an important role in increasing organisational efficiency. Some functions in distribution management like inventory management,

warehouse management, order processing management and transportation management help retailers improve their performance (Ballou 1992). Therefore, this research aims to investigate the contribution of these components to distribution competence. As a result, the question of how distribution competence affects organisational performance will be clarified.

When referring to the values that customers will receive throughout their shopping experiences and the benefits companies will get through good customer service, O'Cass and Ngo (2011) demonstrated the relationship between customer value creation and business performance. As companies create more value for customers, customer satisfaction and loyalty also increase significantly. This is a key factor in customer retention (Helbling et al. 2011). However, it is hard for organisations to deliver values to customers without an effective distribution channel and IT system. Therefore, the relationships among distribution competence, IT capability and customer value creation are interrelated.

According to Bell et al. (2017), in today's retail operations, offline and online channels do not function separately, but in combination. This combined trend is known as Omnichannel. In the Vietnamese market, Omnichannel is an integrated channel developed about 10 years ago, especially in the retail area. Retailers who have potential distribution competence and IT capability can integrate independent channels into a single Omnichannel system. However, in order to develop the Omnichannel, retailers will also face some difficulties and challenges, such as how to ensure IT capability is strong enough to operate both traditional and e-commerce channels, how IT capability and distribution competence affect business performance, and how customer value creation and competitive advantage play a role in the relationship among IT capability, distribution competence and business performance.

Therefore, the objective of this research is to find out the direct and indirect effects of distribution competence and IT capability on business performance of retailers in Omnichannel. Based on the research results, this research aims to suggest solutions to improve the effectiveness and boost the competitive advantages of Omnichannel retailers.

Theoretical backgrounds

Information technology capability

Based on value chain theory (Porter 1985), IT capability is a supporting factor in the process of creating values for an organisation, reflected in its ability to develop products and applications. At the same time, the competitive advantage theory developed by Ngah and Wong (2020) states that IT capability is the competitive advantage of enterprises, helping to increase customer satisfaction and loyalty.

Information technology integration

Information technology integration is defined as the degree of investment in IT to improve the speed of information transmission and consistency across an enterprise's supply chain (Rai et al. 2006). Integration of IT competence includes two structures: data consistency and cross-functional application system integration. Data consistency is defined as the prevalence of data, and that data are consistently stored within a company's supply chain (Rai et al. 2006). Cross-functional application system integration is defined as the degree of real-time communication between function-specific applications of departments within a company and with the business involved.

Information technology flexibility

Weill, Subramani and Broadbent (2002) assert that IT competence should be flexible to be able to handle increasing customer demand without increasing costs. The flexibility of IT competence is important to an organisation, as its resources are shareable and reusable (Willcocks & Sykes 2000). The IT flexibility enables a variety of programs and data to be transmitted in any kind of information, including text, speech, photos, video and data, anyplace, both inside and outside of a company (Byrd & Turner 2001).

Based on the above-stated concepts and classifications, this research uses two observed variables, namely the flexibility of IT and the integration of IT, to measure the latent variable, which is IT capability. In particular, the integration of IT shows the coordination throughout the internal and external functions of the enterprise. At the same time, flexibility represents the ability to respond to requests and support customers quickly and efficiently.

Distribution competence

In 2014, Ross and Rogers, based on the concept of distribution, identified key functions that need to be studied when assessing the distribution competence of enterprises. Distribution competence is reflected in inventory capability, order management capability, storage points management capability and transportation capability (Ross & Rogers 2014).

Inventory competence

In inventory management, one of the most important tasks is managing inventory capacity. Inventory is seen helpful when products are delivered to the appropriate client. However, an excessive amount of inventory or the incorrect product stored in the incorrect location will damage the organisation's entire distribution system (Singh & Verma 2018). Inventory management issues can lead to financial hardship, lower profitability, a loss of competitive advantages and missed possibilities for market expansion (Orobia et al. 2020).

Order management competence

Order preparation, order delivery, order processing, order status reporting and order fulfilment are all included in the order management process, according to Ballou (1992). Order preparation encompasses tasks including obtaining essential details about needed goods and services, completing order forms, checking stock levels and verifying

orders with clients. Ross and Rogers (2014) gave a measure of order management competence through some questions related to order processing time, the complete order rate, customer complaint rate and accurate customer order information.

Storage points management competence

According to Millstein and Campbell (2022), the purpose of storage points management is to meet the needs of online business, as well as the need to store inventory for the business at the retail store in the Omnichannel. Determining storage points location and capability optimises costs and transit times from supplier to warehouse, from warehouse to store, and from warehouse and store to online marketplace in the Omnichannel. Given the important role of storage points, researchers have found ways to measure, evaluate, test and improve warehouse management competence. According to Ackerman (2003), there are four areas that need to be measured: reliability, flexibility, cost efficiency and asset utilisation. In 2014, Ross added some measurement scales to measure warehouse management competence of Ackerman (2003) in more detail with five aspects such as the goods safety, accurate order picking rate, safe transportation of goods in warehouse, information flow in warehouse and efficient space utilisation.

Transportation competence

Transportation capability in the Omnichannel is considered an important factor in supply chain (Dethlefs, Ostermeier & Hübner 2022; Guerrero, Gabor & Ponce-Cueto 2020). Optimising costs and delivery times for online customers, or the distribution of goods to retail points in the Omnichannel system is always a problem that retailers have to solve (Chopra 2018). Therefore, companies pay much attention to transportation capability to ensure business performance and maintain a competitive advantages in Omnichannel.

Customer value creation

O'Cass and Ngo (2011) propose four aspects that organisations can use to create value for customers:

Results value

Customers seek products and services that provide superior performance to meet their explicit and implicit requirements (Afuah 2002). The result value is measured through factors such as the assurance of customer's requirements, product quality, product accuracy, and continuous improvement.

Price value

Customers are not only looking for superior performance in activities but also a fair price (Mittal & Sheth 2001). Price value is measured through some factors such as the level of customers' acceptance with the price offered; the commitment on price policy to customers and the superior pricing strategy in comparison with competitors.

Relationship value

Relationship value makes it easy for customers to access, respond quickly and get additional value (e.g., item status identification). The value of the relationship is measured through several factors: ensuring that customers can easily make purchases at any time; providing quick response to customer needs; maintaining an ongoing relationship with customers; providing additional value to retain customers and implementing strategies to maintain long-term customer relationships (Mittal & Sheth 2001).

Co-creation value

Customers are value co-producers (DeSarbo, Jedidi & Sinha 2001) and the goal of the business is not only to create value for customers but to encourage customers to create their own value from different activities (Sheth 2020). The companies work with customers to provide suitable products and new products; listen to customers' comments, and support customers to add values to their own experiences. Today, the concept of co-creation value is increasingly being promoted to shorten the gap between organisations and customers.

Competitive advantage

Competitive advantage is defined as attributes of an organisation that attract customers. Competitive advantage includes the capabilities that enable an organisation to differentiate itself from its competitors (Li et al. 2006). Dagnino and Ferrigno (2021) and Ali and Anwar (2021) identify competitive advantage factors as an organisation's abilities to satisfy customers, including price, product quality, product line breadth, order fill rate, order lead time, order information and delivery frequency.

Azeem and Sajjad (2021) used a response scale ranging from 1 (strongly disagree) to 5 (strongly agree) to measure competitive advantage over 3 years. The six categories of competitive advantage include (1) significant improvement in competitive advantage over biggest competitor, (2) change in market share relative to largest competitor with improvement, (3) marked improvement in relative profitability compared to the largest competitor, (4) reduction in costs (product or service) relative to the largest competitor, (5) increase in sales relative to the largest competitor and (6) improvement in customer satisfaction relative to the largest competitor.

Business performance

Previous studies have measured organisational performance by using both financial and non-financial criteria. Meanwhile, Slywotzky et al. (2007) proposed to measure organisational performance on three dimensions: outstanding performance, revenue growth and customer relationships. Outstanding performance is measured using three metrics: product delivery time, after-sales service time, and improvements in resources, operating costs and labour costs. Revenue growth includes selling existing and new products to customers. Customer relationships focus on bond and loyalty between a company and its customers as well as the depth of the company' knowledge of customer-related preferences.

Kang and Park (2018) have proposed the factors for measuring the performance of the business, including (1) customer satisfaction, (2) customer loyalty, (3) market share, (4) profit and (5) revenue. In 2021, Tambare et al. (2021) added an additional element to performance: operating costs over time.

Research hypotheses

From the analysis in the literature review part, the author proposes testable research hypotheses for the research model.

Distribution competence and customer value creation

Distribution competence is expressed through inventory capacity, order management capacity, inventory management capacity and transportation capacity (Ross & Rogers 2014). Inventory brings value in terms of product availability to customers (Ballou 2007). The cost of inventory determines the price of the product (Ballou 2007), thus affecting the price value offered to the customer. Moreover, the ability to manage orders will add value to customers when goods are delivered faster and more accurately. When order management capacity is high, the level of values provided to customers will increase (Verhoef 2014). Storage point capability has an impact on creating value for customers. Effective warehouse management will help deliver the right product, in the right quantity, to the right customer, to the right place, at the right time, with the right quality and at the right price. Therefore, the warehouse plays a very important role in ensuring complete orders for customers (Peng, Liu & Ablanedo-Rosas 2022). Transportation capacity refers to the ability to meet the specific needs of customers' goods (Lin et al. 2022). Vehicle management capacity aims to assess whether the organisation is using its transportation resources efficiently or not. Therefore, the proposed research hypothesis is:

H1: There is a positive influence of the distribution competence of a retailer on the customer value creation in the Omnichannel.

Distribution competence and competitive advantage

Some authors have found that factors reflecting distribution competence have effects on competitive advantage. Inventory capability ensures inventory availability. Moreover, inventory creates time value for customers (Derhami, Montreuil & Bau 2021). This value is seen as a competitive advantage of the enterprise compared to competitors. Transportation capability ensures goods are delivered to the right place, at the right time, with the right quantity and quality. According to Ballou (2010), transportation capability provides the value of place for customers. This value contributes to the competitive advantage of enterprises. The capabilities to manage orders and storage points increase the ability to meet customer requirements. When customers are pleased with their order requirements, their satisfaction and loyalty increase (Affran, Dza & Buckman 2019). These factors help companies increase their competitive advantage over competitors. Especially in the context of Omnichannel, where the integration of activities and locations of stores and warehouses requires strong distribution competence to meet customer needs and increase competitive advantage for organisations. Hence, the hypothesis proposed is:

H2: There is a positive influence of a retailer's distribution competence on its competitive advantage in the Omnichannel.

Information technology capability and distribution competence

Rahmatullah et al. (2020) affirmed that IT capability brings many benefits to organisations. When Gang et al. (2009) studied the relationship of IT capability with business performance in general and distribution competence in particular, they found that IT capability supports distribution competence, increases accuracy of order fulfilment, improves inventory management, facilitates inventory management, and tracks order status before and during shipment. Through the flexibility and integration of IT capability, departments and supply chain partners share information quickly and conveniently, thus inventory is always available (Rehman et al. 2018). At the same time, IT helps companies track and manage orders, as well as ensures transportation to work on schedule (Nguyen & Hoang 2022a). On that basis, the research hypothesis is formulated as:

H3: There is a positive influence of the retail business's IT capability on the enterprise's distribution competence in the Omnichannel.

Information technology capability and customer value creation

The advancement and widespread use of IT has been a strategic tool for many companies in recent years to boost the response time and overall operational efficiency. The supply chain as a whole becomes more useful and has reduced operating costs when suppliers, manufacturers, distributors and customers can interact and share information in the same system. As a result, IT has developed into a potent instrument that businesses may use to add value for their clients (Chung 2019). Sharing high-quality information can increase operational efficiency, lower inventory costs and make supply chain procedures more transparent, as demonstrated by Molinillo et al. (2021). These advantages assist companies in raising the value they offer to clients. Consumers use the browsers that companies offer to enjoy a better experience. The efforts of IT also result in faster and more accurate responses to customer requests (Barbu 2021). As a result, the following hypothesis is proposed:

H4: There is a positive influence of IT capability on the creation of retail business value for customers in the Omnichannel.

Information technology capability and competitive advantage

Over the past two decades, IT has been promoted as one of the resources that organisations can use to gain competitive advantage (Baker & Perin 2022). In another study, Nadarajah and Backhaus (2022) confirmed that the flexibility of IT capability is a new and important competitive weapon in developing a sustainable competitive advantage. Sukur (2022) corroborates that the flexibility and adaptability of IT

capability is a prerequisite for doing business globally, where information and knowledge sharing is seen as crucial. The importance of having a strong competency is that it can be relied upon to rapidly build a company's strategy and tactics. Baker, Mukherjee and Perin (2022) argue that an organisation can base on IT capability combined with other complementary resources or organisational capability to gain sustainable competitive advantage. Therefore, the following hypothesis is proposed:

H5: There is a positive influence of IT capability on the competitive advantage of retailers in the Omnichannel.

Customer value creation and competitive advantage

According to Afuah (2002), generating value for customers can be achieved through the following strategies: (1) delivering the superior performance they desire; (2) offering a price they are willing to pay; (3) helping them have a convenient shopping experience and (4) interacting with them to jointly create a consumer experience. As a result, companies enhance customer happiness and loyalty while also improving operational effectiveness.

According to Barney, Ketchen and Wright (2021), a resource must satisfy four distinct requirements in order for a company to have a durable competitive advantage over its rivals: it must be valued, rare, inimitable and irreplaceable. In addition, it is challenging for other companies to match or replicate this competitive advantage (Rahmatullah et al. 2020).

Therefore, creating value for customers will have a positive effect on creating competitive advantages for businesses (Nguyen & Hoang 2022b). On that basis, the following research hypothesis is proposed:

H6: There is a positive effect of creating customer value on the retail business's competitive advantage in the Omnichannel.

Customer value creation and business performance

Organisations give consumers a set of advantages (constituent value) during the exchange process in exchange for customer-generated values. Consumers give the organisations values like money, data and opinions (Carlson et al. 2019).

O'Cass and Ngo (2011) assert that companies generate four categories of values for their clientele: co-creation value, relationship value, achievement value and price value. Enterprises will be able to boost revenue, earnings and service quality when the end value is high (Nguyen & Hoang 2022).

Thus, the following hypothesis is proposed:

H7: There is a positive effect of creating value for customers on the performance of retail businesses in the Omnichannel.

Competitive advantage and business performance

According to a study done by Raduan et al. (2009), organisational performance and competitive advantage are positively correlated. An organisation's performance is significantly impacted by its competitive edge. The idea of competitive advantage can serve as a framework for both general performance and company operations in particular (Majeed 2011). The resource-based value perspective's definition of competitive advantage shows a firm's capabilities and helps to describe the whole picture of its performance (Chatterjee, Rana & Dwivedi 2021). Based on the above-stated points, the author hypothesised the following:

H8: There is a positive effect of competitive advantage on the performance of retailers in the Omnichannel.

Distribution competence and business performance

Business performance is impacted by inventory capabilities (Ross & Rogers 2014). More precise inventory forecasting results in lower operational expenses, more profits, better sales and a rise in market share (Eckert 2007). Requirements for acceptable procedures and quick, correct order processing help lower customer complaints and return chances (Kazmi & Ahmed 2022). By cutting expenses and raising revenues, businesses can increase their operational efficiency with strong order processing capabilities (De Gooijer 2000). Furthermore, strong warehouse management competence improves organisational performance through the effective use of storage space, appropriate storage locations, accurate delivery and quality assurance (Slack, Chambers & Johnston 2001). At the same time, when referring to transportation capability, cost is a factor of great concern. Transportation costs are also involve indirect costs such as the cost of loading and unloading the goods on the means of transport, the cost of damage, the cost of insurance during transportation and the cost of inventory during transportation (Ai & Rahman 2019). If transportation is well managed, transportation costs will be reduced, thereby improving the performance of enterprises (Sabaheta 2013). Thus, the following research hypothesis is suggested:

H9: There is a positive influence of distribution competence on the performance of retailers in the Omnichannel.

Information technology capability and business performance

While a number of research have discovered a favourable association (Tarigan et al. 2021) between IT investment and organisational performance, other studies suggest that there is either no relationship at all or a negative relationship (Rahmatullah et al. 2020). Information Technology capability, according to Tajudeen et al. (2021), is the capacity of IT to adjust to new, different or shifting business requirements. They emphasise that IT competencies are a source of value in supply chain.

To improve business performance, companies must improve operational efficiency, reduce overall costs and improve customer satisfaction (Tarigan et al. 2021). Therefore, the following hypothesis is proposed:

H10: There is a positive influence of IT capability on the performance of retail businesses in the Omnichannel.

Mediating influence of customer value creation and competitive advantage in the relationship between information technology capacity, distribution capacity and business performance

Previous studies have shown that distribution capacity enhances value for customers and is a source of competitive advantage for companies (Hannan 2011, Janatyan, 2018). At the same time, the study also shows the relationship between IT capability and customer value creation, especially in the online channel (Byrd 2001).

Therefore, it can be seen that there is a connection between IT capacity, distribution capacity, customer value creation, competitive advantage and organisational performance. In other words, customer value creation and competitive advantage can act as mediators in the relationship between distribution competence, IT capacity and business performance in the Omnichannel. Therefore, the following hypotheses are proposed:

H11a: The creation of value for customers and competitive advantage act as an intermediary role between the distribution capacity and the performance of the retailer in the Omnichannel.

H11b: Creating value for customers and competitive advantage act as an intermediary between the IT capability and the performance of the retailer in the Omnichannel.

Research methods and design

The objective of the quantitative research is to test and examine the influence of distribution competence and IT capability on customer value creation, competitive advantage and business performance in Omnichannel. To determine these influences, the author learned the conceptual frameworks, theoretical frameworks and scales of previous studies, thereby building research model and questionnaires for the research. A 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was applied to measure the factors in the questionnaire.

Methods of sample transmission include emailing and direct surveys with respondents to ensure the required number of samples. The initial distribution included 50 questionnaires for a pilot test. After that, formal research was conducted by direct submission of 250 questionnaires. The target respondents were senior and middle managers (directors, sales managers, warehouse managers, e-commerce managers) of retail companies operating in Omnichannel in Vietnam. These companies must have both online and offline business systems. Their business areas are fashion, food and drink, technology products, cosmetics, household goods, medical products and some other fields such as souvenirs and stationery. After data collection and cleaning, 200 valid responses proceeded to the next stage of analysis.

The author conducted scale reliability analysis, exploratory factor analysis (EFA) and structural equation modeling (SEM) linear structure model to examine the compatibility of the theoretical research model with actual data. Data were processed using Excel, Statistical Package for the Social Sciences (SPSS) 22, IBM, Armonk, NY, US and partial least squares-SEM (PLS-SEM) software.

Ethical considerations

An application for full ethical approval was made to the Ho Chi Minh Research and Development Institute, and ethical consent was granted on 18 February 2024.

Results

Analyse the effect of the independent variable on the dependent variable

The research model evaluation includes two phases: measurement model evaluation and structural model evaluation.

The evaluation of the measurement model includes the following steps: (1) evaluate the structural reliability of the scale; (2) evaluate the internal consistency reliability; (3) evaluate the convergent value and (4) assess the discriminant value.

The evaluation of the structural model includes the following steps: (1) evaluate the multicollinearity; (2) evaluate the relationship in the structural model; (3) evaluate the coefficient of determination R^2, (4) evaluate the impact factor f^2; (5) evaluate the relevance of the forecast Q^2 and (6) evaluate the coefficient q^2.

Evaluation of scale's structural reliability and internal consistency reliability

Cronbach's alpha coefficients are all greater than 0.8 for all latent variables. More specifically, Cronbach's alpha coefficients for distribution competence (DC) is 0.781, for IT competence (IT) is 0.865, for customer value creation (CVC) is 0.894, for competitive advantage (CA) is 0.848 and for business performance (PER) is 0.857.

Composite reliability is used to evaluate internally consistent reliability. According to Hair et al. (2017), a composite confidence coefficient of 0.7 or higher is considered good, and a composite confidence coefficient of 0.6 to less than 0.7 is acceptable for exploratory studies. Specifically, the composite reliability coefficients ranging from 0.800 to 0.934 prove to be a good level (see Table 1).

The results presented in Table 1 show that Cronbach's alpha values for all factors are higher than 0.7 and average variance extracted (AVE) values are higher than 0.7. This means that internal consistency reliability and convergent validity of these constructs are obtained.

To assess convergence value in the PLS-SEM analysis, the AVE value is applied. An AVE value of 0.5 or higher

indicates that the scale has convergent value (Hair et al. 2017). In this research, the scale achieves the convergent value when the variables all reach the AVE level of 0.676 or higher.

In addition to assessing the convergence value, the evaluation of heterotrait-monotrait ratio (HTMT) ratio is important. An HTMT index less than 0.9 indicates that the scale has discriminatory value (Henseler, Ringle & Sinkovics 2014). The HTMT ratio, as shown in Table 2, ranges from 0.264 to 0.503; therefore, the scale achieves discriminant value. Based on these result, the measurement model is accepted for further analysis.

Evaluating multicollinearity is one of the steps to be carried out to evaluate the relationship between variables in the research model. The model is not in multicollinearity status when the variance inflation factor (VIF) ratios are less than 5 (Hair et al. 2017). Specifically, the intrinsic VIF values range from 1.016 to 1.388, thus they meet the requirement.

Evaluation of the relationship in the structural model (coefficient paths)

The degree of influence of the independent variables on the dependent variable is shown in Figure 1 and Table 3.

The specific results are as follows:

The impact of distribution competence on competitive advantage has β = 0.199, on customer value creation has β = 0.220, and on business performance has β = 0.271.

The impact of IT competence on the competitive advantage of enterprises has β = 0.220, customer value creation has β = 0.318, distribution competence has β = 0.214 and up to business performance has β = 0.198.

The effect of customer value creation on business performance has β = 0.261 and on competitive advantage has β = 0.174.

The effect of competitive advantage on the business performance of retailers in the Omnichannel has β = 0.229.

Thus, although the level of impact between the factors is highly differentiated, the analysis results show a positive influence of the factors in the research model.

Analysis of the mediated impact model

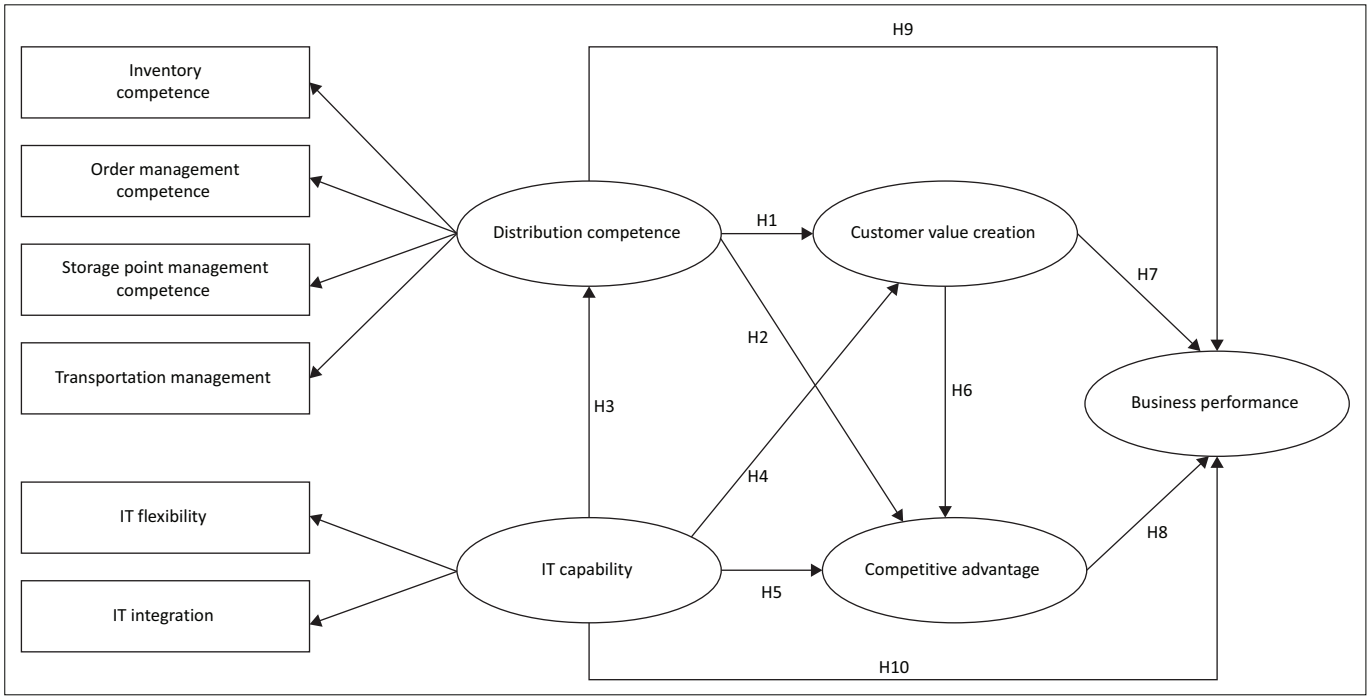
In the research model, customer value creation and competitive advantage play intermediary roles between distribution competence, IT capability and business performance of retailers in the Omnichannel. The results of testing the role of intermediate variables are shown in Table 4.

Through the intermediary variables of customer value creation and competitive advantage, IT competence has a significant

TABLE 1: Construct reliability and convergent validity.

Variables	Cronbach's alpha	CR	AVE
IT capability	0.86	0.80	0.95
Distribution competence	0.78	0.90	0.95
Customer value creation	0.89	0.82	0.70
Competitive advantage	0.85	0.93	0.83
Business performance	0.86	0.91	0.68

IT, information technology; AVE, average variance extracted; CR, composite reliability.



IT, information technology.

FIGURE 1: Research model.

TABLE 2: Discrimination validity by heterotrait-monotrait ratio.

Variables	CA	ITC	DC	BP
Competitive advantage	-	-	-	-
IT capability	0.29	-	-	-
Distribution competence	0.26	0.31	-	-
Business performance	0.50	0.40	0.44	-

CA, competitive advantage; ITC, information technology capability; DC, distribution competence; BP, business performance; IT, information technology.

TABLE 3: Level of impact between variables.

Variables	Competitive advantage	Customer value creation	Distribution competence	Business performance
Competitive advantage	-	-	-	0.23
IT capability	0.22	0.32	0.21	0.20
Customer value creation	0.26	-	-	0.17
Distribution competence	0.20	0.22	-	0.27

IT, information technology.

impact on business performance (β = 0.204, *p*-value = 0.001). Similarly, through the intermediary variables of customer value creation and competitive advantage, the distribution competence has a significant impact on business performance (β = 0.097, *p*-value = 0.000). Notably, through the intermediary variables of distribution competence, customer value creation and competitive advantage, IT competence has had a stronger impact on business performance (β = 0.204) compared to the direct effect (β = 0.198). This is also a new point of the research. Therefore, retailers in the Omnichannel need to invest and promote IT capability because it has an impact on distribution competence, customer value creation and competitive advantage, thereby increasing business performance.

The total impact factor of both direct and indirect influence of distribution competence on business performance is 0.368. At the same time, the total impact factor of both direct and indirect influence of IT capability on business performance is 0.402. Thus, the results of the study have contributed to affirming that customer value creation and competitive advantages are mediators of the impact of distribution competence and IT competence on business performance in the Omnichannel in Vietnam.

Bootstrap test

The bootstrap test with the significance level of *p* = 5% and the sample size of 500 shows that the relationships between the research variables are satisfactory with *p*-value < 5%.

Table 5 shows that all hypotheses are accepted after bootstrapping. It means the reliability of research.

At the same time, some measuring indices such as the relevance of the forecast Q^2, coefficient R^2, the impact factor f^2 and coefficient q^2 show that the model is predictive guess, the forecast is at a medium level and the data are appropriate in the research model.

Discussion

Research results have proven the suitability of the research model with data collected from the market in the context of Omnichannel in Vietnam today. The direct influence of

TABLE 4: Results of testing the intermediary role of customer value creation and competitive advantage.

The relationship between variables	Indirect impact factor	Direct impact factor	*p*	Total impact factor
The effect of distribution competence on business performance.	-	0.27	0.00	0.37
The effect of distribution competence on business performance through customer value creation and competitive advantage.	0.10	-	0.00	-
The effect of IT competence on business performance.	-	0.20	0.00	0.40
The effect of IT competence on business performance through customer value creation and competitive advantage.	0.20	-	0.00	-

IT, information technology.

TABLE 5: Bootstrap test.

Variables	O	M	SD	*t*-statistics (|O/SD|)	*p*	Conclusion
CA -> PER	0.23	0.22	0.07	3.39	0.001	Accept
ITC -> CA	0.22	0.22	0.06	3.45	0.001	Accept
IT -> CVC	0.32	0.32	0.06	5.04	0.000	Accept
IT -> DC	0.21	0.21	0.08	2.79	0.005	Accept
IT -> PER	0.20	0.20	0.06	3.37	0.001	Accept
CVC-> CA	0.26	0.26	0.07	3.63	0.000	Accept
CVC -> PER	0.17	0.18	0.06	2.86	0.004	Accept
DC -> CA	0.20	0.19	0.06	3.08	0.002	Accept
DC -> CVC	0.22	0.21	0.06	3.56	0.000	Accept
DC -> PER	0.27	0.27	0.07	3.99	0.000	Accept

SD, standard deviation; O, original sample; M, sample mean; CA, competitive advantage; DC, distribution competence; BP, business performance; CVC, customer value creation; PER, business performance; ITC, Information technology capability.

distribution competence and IT competence on customer value creation, competitive advantage and business performance is clearly shown through the results of model testing. At the same time, the intermediate influence of distribution competence and IT competence on business performance through customer value creation and competitive advantage is also determined to exist and be meaningful.

The quantitative research results also confirm that, to operate the Omnichannel effectively, IT competence must be coordinated with distribution competence to increase the value created for customers. Research results show that the influence of IT competence on distribution competence is quite high (β = 0.214), highlighting the necessity of IT competence in supporting distribution competence to operate Omnichannel.

The acceptance of research hypotheses is consistent with previous authors' studies. Hübner, Holzapfel and Kuhn (2016) asserted that Omnichannel distribution competence provides systematic benefits in terms of business performance and customer service. Cho, Ozment and Sink (2007) and Kazmi and Ahmed (2022) stated that enterprises need to have strong distribution competence to enhance competitive advantage and improve performance in both traditional and e-commerce markets. In terms of customer value creation, hypotheses H6 and H7 have reinforced the research results of O'Cass and Ngo (2011) and Mishra, Ewing and Pitt (2020), which proved that there is a relationship between customer value creation and business performance. In terms of IT capability, hypotheses H3, H4, H5 and H10 are accepted,

thus consistent with the views of previous authors such as Gang et al. (2009), Rai and Tang (2015) and Byrd (2001). In addition, hypothesis H8 (the positive influence of competitive advantage on business performance in Omnichannel) is agreed upon by many authors through studies related to the impact of competitive advantage to business performance. Studies by Delaney (1996), Rhodes (2008) and Li et al. (2006) have acknowledged that when enterprises have competitive advantages, this will help organisations operate more efficiently, achieve higher revenue and profits, and maintain longer-lasting customer relationships.

Managerial implications

Increase competitive advantage, enhance customer value creation and improve business performance through distribution competence of retailers in Omnichannel

Distribution competence is expressed through inventory competence, order management competence, transportation competence and inventory management competence.

To solve problems related to inventory competence, managers need to have a specific and clear plan and maintain a connection with manufacturers in supplying products to the retail system. At the same time, the application of IT software in inventory management is an extremely necessary thing.

To improve the efficiency of order management, administrators need to ensure seamless order information between departments, improve order processing speed, enable customers to track their order status and effectively handle customer complaints.

At the same time, when considering the storage competence, the administrator should pay attention to the storage competence management. There must be a plan to design a distribution network, in which it is necessary to build a distribution centre to coordinate the products in the system.

Transportation competence, which is assessed by enterprises, needs to be improved. Therefore, in order to further improve the efficiency of transport competence, administrators need to apply more IT in management, dispatching modes and transportation personnel. Retailers need to have plans to develop more professional resources to speed up delivery and increase customer satisfaction.

Increase competitive advantage, customer value creation and improve business performance through information technology competence of retailers in Omnichannel

The integration and flexibility of IT are used to evaluate IT proficiency. Administrators must encourage IT's flexibility in both internal operations and client service in order to develop IT competency. To guarantee that clients always have access to the most recent and accurate information, the e-commerce website is updated on a regular basis. Information technology integration must be targeted at the same time. To enable departments to access and process information in accordance with their roles and responsibilities, information must be shared in a methodical manner.

The bottlenecks in the operation process, such as delays in information sharing or outdated information on e-commerce site, must be coordinated with each other to solve together, so that the coordination between functions will be more scientific and rhythmic.

Enhance competitive advantage and improve operational performance through customer value creation of retailers in Omnichannel

Research findings indicate that customer value creation increases both competitive advantage and business performance. Therefore, managers need to pay attention to customer value creation by improving customer care services and listening to customer feedback to provide products and services that match their expectations.

In addition, research findings indicate that the majority of Omnichannel organisations have performed fairly well financially over the last 3 years. Managers must concentrate on aspects of customer value generation, IT proficiency, distribution competence and company competitive advantages in order to further enhance corporate performance.

Improve operational performance through the intermediary efficiency of customer value creation, competitive advantages of enterprises of retailers in Omnichannel

Research findings indicate that nearly all Omnichannel organisations have performed very well financially over the past 3 years. To further enhance performance, managers must concentrate on factors linked to the competitive advantage and customer value creation. Notably, with $\beta = 0.229$, competitive advantage has the second highest influence on business performance (after distribution competence). Therefore, the performance of the business will be enhanced when managers focus on promoting the resources that bring competitive advantages in Omnichannel.

Limitation and future research

Although the study has made certain contributions, some limitations and shortcomings are unavoidable. As a result of time limitation, geographical distance and the accessibility to managers in Omnichannel, the author has collected information with a sample size of 200 managers operating in the Omnichannel. In the future, further studies should expand the sample size to increase the generalisability of the study.

Conclusion

The research results have demonstrated the suitability of the research model with data collected from the market in the context of the current Omnichannel in Vietnam. The direct impact of distribution competence and IT capability on customer value creation, competitive advantage and business performance is clearly demonstrated through the

model testing results. At the same time, the intermediate impact of distribution capacity and IT capacity on business performance through customer value creation and competitive advantage is also determined to exist and be significant.

Bootstrap test with significance level equal to 5% and sample size of 500 has also showed the existence of positive relationships proposed in the research model.

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Author's contributions

A.T.D.N. declares that she is the sole author of this research article.

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Data availability

The author confirms that the data supporting the findings of this study are available within the article.

Disclaimer

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