

Digitalization in B2B marketing: omnichannel management from a PLS-SEM approach

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Abstract

Purpose – The purpose of this paper is to establish a reference model that will allow us to understand the factors that influence the omnichannel management of an organization in a business-to-business (B2B) context.

Design/methodology/approach – In building the model, a partial least squares structural equation modeling approach was followed. More than 1,000 executives with a C-level profile (chief executive officer, chief marketing officer or chief digital officer), from manufacturers and wholesalers, in various industries worldwide were contacted. The final sample consisted of 124 C-level executives in multinational B2B companies from 35 countries worldwide.

Findings – The principal finding is that optimal omnichannel management must involve a customer-centric proposition forming the basis for individualized marketing that tailors the company's portfolio of solutions to suit each client. To ensure this, customer knowledge at each touchpoint is essential. The results show that the main predictor of B2B omnichannel management is sales and marketing, even above channels. The principal conclusions are that the model shows that good omnichannel performance is measured by the performance of the industrial buyer. Loyalty and experience are primary measures of this customer's performance.

Originality/value – Research into omnichannel management in the B2B field is scarce, especially concerning the creation of models for decision-making.

Keywords Business-to-business, Digitalization, Customer experience, Industrial purchasing, Customer loyalty, Omnichannel management, Industrial buyer, Loyalty

Paper type Research paper

1. Introduction

Omnichannel management has been defined (Verhoef *et al.*, 2015) as:

[...] the synergetic management of the numerous available channels and customer touchpoints, in such a way that the customer experience across channels and the performance over channels is optimized.

This synergistic management is what differentiates an omnichannel strategy from multichannel management. The omnichannel strategy has been boosted by the latest technological advances that provide precise information, at each moment and for each channel, of each client's context. The corporation's value proposition can therefore be adapted within a specific channel and at a specific time (Cai and Lo, 2020). This paper, however, focuses on omnichannel management in the business-to-business (B2B) sphere, i.e. on the concept of industrial client, professional buyer or procurement officer (Alonso-Garcia *et al.*, 2021a; Hadjikhani and LaPlaca, 2013; Mudambi, 2002). As stated in the literature review section, few papers cover the B2B field (Alonso-Garcia *et al.*, 2021b), so the models that have already been published to aid omnichannel decision-making do so from a retail point of view. We have no reference models to use in

establishing the success factors for omnichannel implementation. There are thus elements of B2B firms that have an impact on this omnichannel management and that have not been taken into account in the published models that refer to the retail industry. For example, a wholesaler's traditional sales force is a characteristic element of an industrial customer's B2B experience. Likewise, a manufacturer's distribution network is a variable that has not been taken into account in the omnichannel management models published to date, because such networks are typical of the B2B sphere (Hoehle *et al.*, 2018; Hoogveld and Koster, 2016; Hossain *et al.*, 2020; Shen *et al.*, 2018). The objective of this research is to remedy this lack of research by establishing a reference model that will allow us to understand the factors influencing an organization's omnichannel management in a B2B context. This model may therefore serve as a guide to identifying the key aspects that should be developed to ensure optimal management. The questions to resolve are, therefore:

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- Q1. What are the principal predictive variables for omnichannel management in the B2B sphere?
- Q2. What is the importance of adopting new digital channels and their integration with the other channels through which the company provides its services and/or sells its products?
- Q3. What are the measurement variables that determine omnichannel management in B2B?

2. Theory and hypotheses

To ensure a relevant theoretical background, we can base our work on two lines of research. On the one hand, we can infer behaviors in a digital channel in B2B from papers on e-commerce in that field (Power, 2005). And on the other, the many papers on omnichannel management in the context of the retail sector are relevant (Ho et al., 2021). While these two lines of research do not fully match the fundamental objective of this paper, they do establish preliminary bases for the model.

2.1 Business-to-business e-commerce

There has been extensive research into digital channels in the B2B field, from the e-commerce perspective, as is reflected in the literature. In fact, this is a constantly developing area. There are therefore numerous literature reviews in this sphere in general (Herhausen et al., 2020; Leek and Christodoulides, 2011; Pandey et al., 2020; Paris et al., 2016), and particularly in the more specific research areas, such as channels (Dwivedi et al., 2021; Müller et al., 2018), or industries (Buratti et al., 2018; Chirumalla et al., 2018; Fauska et al., 2013; Rose et al., 2021). Research into the implementation of e-commerce can therefore be considered relevant for omnichannel research. Although these are papers that focus more on multichannel research than omnichannel management, there are some in the B2B field that deal with the effects of the adoption of digital channels on traditional physical channels and the company's general performance, and these studies are relevant (Bakri et al., 2010; Leek and Christodoulides, 2011; Lorca et al., 2019;

Mudambi, 2002; Rajamma et al., 2011; Yuan et al., 2021). Table 1 below gathers the most relevant papers in B2B by area of interest according to the most recent literature review (Herhausen et al., 2020; Kittur et al., 2021; Pandey et al., 2020). Those related to some topic within omnichannel have been selected.

2.2 Retail omnichannel management

Omnichannel management has been studied to a great extent in the retail field, with a special focus on the integration of digital channels with physical stores (Cao et al., 2016; Gao and Su, 2017; Harsha et al., 2019). Omnichannel management is a research field of growing interest. In the scientific literature, we find literature review papers that establish the bridge between e-commerce and multichannel management, on the one hand, and omnichannel management, on the other (Beck and Rygl, 2015; Trenz, 2015; Verhoef et al., 2015). Within omnichannel management itself, as indicated above, research in the B2B field is still limited (Alonso-Garcia et al., 2021a; Kembro et al., 2018). In this area, we would highlight the papers that refer to specific case studies of manufacturers or wholesalers (Hansen and Sia, 2015; Saghiri et al., 2017). The paucity of relevant research in the B2B field is shown by the multiple literature review papers, which, however, restrict their review to the retail field (Cai and Lo, 2020; Galipoglu et al., 2018; Lazaris and Vrechopoulos, 2013; Melacini et al., 2018; Mirsch et al., 2016; Simone and Sabbadin, 2017).

However, these are the models that are applicable to the scope of this work and have already been identified in this field, although they are in the retail industry. These studies have been taken into account in identifying the constructs to be used in the model used in this research, because they have models that are directly applicable in omnichannel management. This is due to their research on channels (Shen et al., 2018), processes (Hoogveld and Koster, 2016; Hossain et al., 2020) or some aspect of customer performance defined later in this paper (Hoehle et al., 2018). Table 2 shows the most relevant papers in omnichannel management according to recent literature review (Cai and Lo, 2020; Galipoglu et al., 2018; Mirsch et al., 2016).

In addition to the review of the literature, a previous work has been carried out to discover the identifiers that are part of the

Table 1 Most relevant work in B2B

| Topic | Sources |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customer loyalty | Kwiatk et al. (2020), Lam et al. (2004); Ramaseshan et al. (2013), Sirdeshmukh et al. (2002); Uncles et al. (2003), Verhoef (2003) |
| Multichannel management | Järvinen et al. (2012); Kabadayi et al. (2007), Long et al. (2007); Osmonbekov et al. (2009) |
| Performance | Agustin and Singh (2005), Bakri et al. (2010); Lorca et al. (2019); Müller et al. (2018); Ulaga (2003), Yuan et al. (2021) |
| Relationship management | Agnihotri et al. (2017), Keramati et al. (2010); Rajamma et al. (2011), Rauyruen and Miller (2007); Ruiz-Martinez et al. (2019) |
| Sales management | Guesalaga (2016), Li et al. (2018); Marcos Cuevas (2018), Pandey (2015); Rollins et al. (2014) |
| Strategies and branding positioning | Brown et al. (2011), Buratti et al. (2018); Chirumalla et al. (2018), Dwivedi et al. (2021); Fauska et al. (2013), Leek and Christodoulides (2011); Mudambi (2002), Rose et al. (2021); Sheth and Sinha (2015) |
| Technologies and innovation | Boyd and Koles (2019), Gordini and Veglio (2017); Grewal et al. (2001), Shaltoni (2017); Suppatvech et al. (2019), Veldeman et al. (2017) |

Table 2 Most relevant work in omnichannel management

| Topic | Sources |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Consumer behavior and preferences | Chen and Chen (2017), Chiu and Lin (2016); Chou et al. (2016); Flavián et al. (2016); Grewal et al. (2017), Pantano and Viassone (2014); Shen et al. (2018), Xu et al. (2017) |
| Logistics | Bernon et al. (2016), Castillo et al. (2018); Galipoglu et al. (2018); Hübner et al. (2016); Hübner et al. (2016); Ishfaq et al. (2016), Ishfaq and Raja (2018); Kembro et al. (2018), Lim and Srai (2018); Marchet et al. (2018), Melacini et al. (2018); Wollenburg et al. (2018) |
| Marketing | Hilken et al. (2017), Hoehle et al. (2018); Pauwels and Neslin (2015), Verhoef et al. (2007); Verhoef et al. (2017) |
| Omnichannel management | Avery et al. (2013), Breugelmans and Campo (2016); Brynjolfsson et al. (2013), Bell et al. (2014); Gallino et al. (2017), Gao and Su (2017); Hansen and Sia (2015), Herhausen et al. (2015); Kireyev et al. (2017), Piotrowicz and Cuthbertson (2014); Verhoef et al. (2015), Weinberg et al. (2007) |
| Strategy | Ailawadi and Farris (2017), Beck and Rygl (2015); Cao (2014), Cao and Li (2015); Lapoule and Colla (2016), Pauwels and Neslin (2015); Rigby (2011), Zhang et al. (2016) |

constructs of the model. As detailed later in Section 3, a Delphi process was carried out with a panel of experts to reach a consensus on the indicators that should be part of the model. The relationship of these indicators with the latent variables and the resulting model has been made based on a review of the published literature as detailed in the following sections.

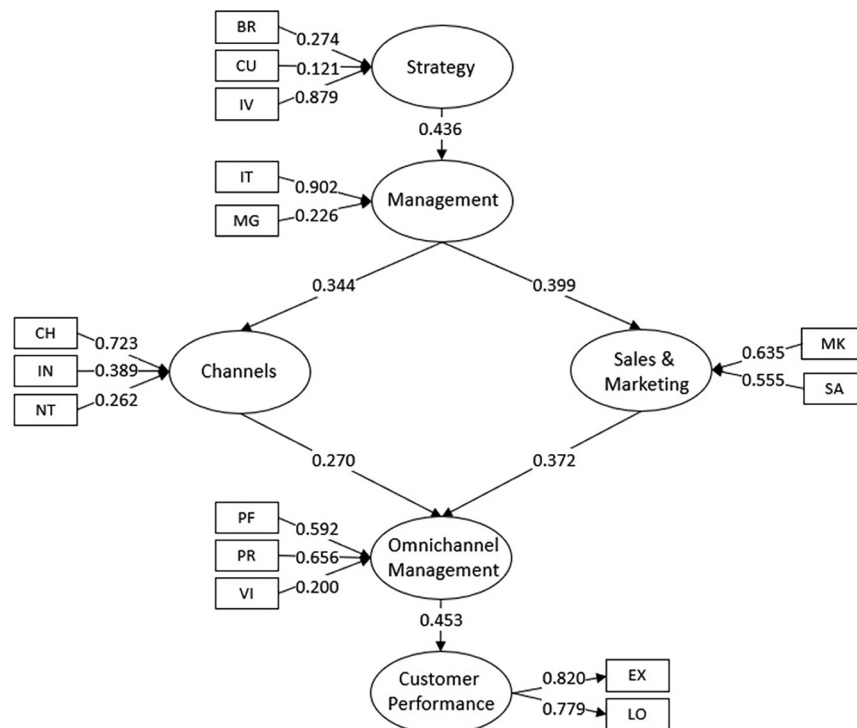
Figure 1 shows the conceptual model proposed, with each construct, its dimensions and the hypotheses to be tested. Omnichannel management seeks to maximize the company's profit, but it does so by improving the customer experience and/or increasing customer loyalty, in such a way that both variables

generate a greater volume and recurrence of purchases (Chaffey, 2010).

2.3 Strategy

The B2B literature states that, for good performance in the B2B sphere, strategy and prudent change management must prevail if significant business benefits are to be expected. Profit will mainly be determined by formulating an *effective strategy formulation* (Power, 2005). Similarly, omnichannel papers point out that taking advantage of new opportunities implies facing challenges and *rethinking their competitive strategies* (Brynjolfsson et al., 2013).

Figure 1 Conceptual model and hypotheses



It is one of the models that a company can adopt to carry out a digital transformation, but given the nature of the transformation, this requires a long-term strategy. Digital transformation eliminates traditional business models and strategies and, at the same time, adds considerable value to all areas of the company (Fernández-Rovira *et al.*, 2021; Simone and Sabbadin, 2017). The strategy to be followed will therefore be one of the most important variables that precede the impact on the rest of the model.

Regarding *brand strategy [BR]*, in omnichannel literature, as the channels are managed jointly, the customer tends to perceive the brand more than the channel (Piotrowicz and Cuthbertson, 2014). In fact, one of the main differences between omnichannel management and traditional multichannel strategy is the focus on the brand (Verhoef *et al.*, 2015). Therefore, in omnichannel, brand and channel are closely related (Neslin *et al.*, 2014). Moreover, each customer touch point can affect the performance of retailers and brands (Baxendale *et al.*, 2015). In the B2B literature, the impact of the brand on the perceived value to the customer has been considered, as well as the concept of the brand or corporate reputation (Hansen *et al.*, 2008). Therefore, brand strategy is incorporated as an element of the omnichannel management model, within the strategy construct.

As for the *innovation strategy [IV]*, this variable is present in research linked to the B2B sphere, as an element to be considered in the process of digitalizing companies (Markovic *et al.*, 2021; Obal and Lancioni, 2013; Tsai *et al.*, 2013). Likewise, in the omnichannel field, retailers establish strategies that include applying digital and physical innovations (Simone and Sabbadin, 2017). There are several drivers of innovation for channel marketing, and all of them are applicable to an omnichannel approach: innovation in processes (services and distribution formats); in relations with the channel and the consumer; and organizational innovation (Musso, 2010).

The third measure of the strategy construct is *corporate culture [CU]*. The customer engagement pursued by omnichannel management must be based on corporate culture – in fact, this must be one of its main tenets (Grewal *et al.*, 2017). Omnichannel management seeks to create greater value for the customer (Larke *et al.*, 2018), which usually implies changes in the culture of the company (Guenzi and Troilo, 2007). Multichannel management already implied a cultural change in traditional companies (Chaffey, 2010; Lewis *et al.*, 2014), and omnichannel management implies an even more pronounced cultural change, since when organizational silos by channel are abandoned, the company must undertake cultural change (Cao, 2014). Based on the lessons learned in companies that implement a digitalization strategy and, in particular, an omnichannel management strategy, changes in culture and mindset are essential for success (Hansen and Sia, 2015; Ritala *et al.*, 2021).

The measures collected in this construct have been related to each other in multiple papers. For example, organizational culture and strategic management have been shown as impact variables for organizational excellence or business performance. In these models, innovation is an impact indicator (Alhefity *et al.*, 2019; Lončar, 2017). Similarly, innovation and organizational culture are key elements of impact on the brand's own strategy (de Oliveira Santini *et al.*, 2018; O'Casey

and Viet Ngo, 2007). The model collects these indicators as formative as it is assumed that the construct is expressed in terms of the manifest variables, that is, the indicators form, cause or precede the construct. The model does not expect a correlation between. A high value in terms of innovation strategy does not necessarily have to imply a high value in brand strategy or corporate culture.

There are several studies that have demonstrated the impact of strategy on various dimensions of corporate management. Especially regarding leadership in management as collected in the following construct "Management" (Kohlbacher *et al.*, 2011; Kotler and Pfoertsch, 2007; Marx, 2015). The adoption of an omnichannel strategy implies a transformation of the company in which the mindset of the organization toward a new customer-centric process and the way in which innovation can be applied in the corporation will be key in the final performance. In addition, the new management processes must respect the boundaries already established in terms of brand strategy. Therefore, the authors argue that the brand and innovation strategy, as well as the organizational culture, establish the management framework of an omnichannel organization. Thus, this research hypothesizes that:

H1. Strategy (as it has been defined above) has a positive effect on management in an omnichannel B2B company.

2.4 Management

From the indicators identified by the panel of experts, two are involved in the "management" construct of the model and therefore in daily operations: information technology (IT) management and the leadership of the management team. Both are fundamental to the digitalization processes used by companies (Annarelli *et al.*, 2021).

In regard to *IT Management [IT]*, it is technology that has driven and makes omnichannel "inevitable" (Brynjolfsson, Hu, and Rhaman, 2013; Simone and Sabbadin, 2017; Verhoef *et al.*, 2017). Therefore, from a management point of view, IT management becomes essential in this type of strategy. These include augmented reality (Hilken *et al.*, 2017), big data (Lehrer *et al.*, 2018) and artificial intelligence (Betzing *et al.*, 2018). To develop the company's digital transformation, the IT manager chief information officer (CIO) evolves into the new role of chief digital officer (CDO), with greater responsibility and collaboration with the company's other areas (Hansen and Sia, 2015).

Regarding *leadership in management [MG]*, senior-level leadership is required in every transformation (Chaffey, 2010). The multichannel papers already included the importance of the management team in preventing the effects of cross-channel cannibalization (Cai and Lo, 2020). Similarly, omnichannel and B2B literature highlights the importance of commitment from both employees and the management team for positive results to be obtained (Hoogveld and Koster, 2016; Ruiz-Alba *et al.*, 2019; Simone and Sabbadin, 2017). Leadership in an omnichannel strategy must especially be orientated to training and motivating employees to achieve results and performance (Grewal *et al.*, 2017; Schwarzmüller *et al.*, 2018). Because management involvement is so important for success, lack of attention from

management is also one of the main causes of failure (Wollenburg *et al.*, 2018).

New technologies are key in omnichannel management. This fact reinforces that the management construct adds IT management to management leadership. Actually, given the incipient weight of new technologies, recent research has been published that considers IT management as a key element in management decision-making for any type of corporation (Harguem, 2021; Reichstein, 2019; Santos Castellanos, 2021). As in the strategy construct, the model assumes that of management with formative indicators. That is, again, both indicators form the construct and are not correlated with each other.

The management thus considered has a direct impact on the decision of the channels. That is, how many and what digital channels should be added to the organization's offer; in what phase and with what degree of integration; and how it should affect the traditional channels represented by the distribution chain of the manufacturer or distributor. These decisions and the daily management of the channels will determine the performance of the company in terms of omnichannel (Kersmark and Stafund, 2015). Thus, relevant published research already shows how both digital channels, such as integration and the distribution network, impact the performance of the company and how decision-making impacts in turn on these channels (Straker *et al.*, 2015), or the level of integration, respectively (Cao and Li, 2015). Thus, this research hypothesizes that:

H2. Management has a direct and positive impact on the channels through which services are provided.

In the same way, the leadership in management and the digital tools provided to the sales and marketing team will largely define the management of these specific areas. Leadership in management and new digital tools impact the management of the sales force in a field of digital transformation (Wengler *et al.*, 2021). Furthermore, this management influence and the new digital tools have a positive impact on marketing management, thanks to a much more enriched and contextualized customer information, which allows predictive and real-time models (Fernández-Rovira *et al.*, 2021). Therefore, this research also hypothesizes that:

H3. Management has a direct and positive impact on sales and marketing management in the omnichannel strategy.

2.5 Channels

The "Channels" construct may be the most characteristic of an omnichannel strategy. In addition, its position in the model has a clear dependence on corporate management, especially IT, and business strategy (Mirsch *et al.*, 2016; Shen *et al.*, 2018).

Digital channels [CH] are the ones that have led to the appearance of the omnichannel strategy. As many as "34 different digital touchpoints" with the client have been identified, with four types of digital channels, "formed by clustering" (Straker *et al.*, 2015). Multichannel papers have shown the complementarity that digital channels bring to physical channels (Avery *et al.*, 2013).

Integration [IN] among channels is also a basic feature in omnichannel. In fact, the main difference between omnichannel versus cross-channel retailing and multichannel retailing is the complete integration between channels, as perceived by the customer and controlled by the company (Beck and Rygl, 2015; Cai and Lo, 2020; Hübner *et al.*, 2016; Rigby, 2011). In fact, the need to move toward complete channel integration, to obtain more information on customer behavior, was already mentioned in the papers on multichannel (Neslin *et al.*, 2006). In this model, channel integration is taken in a broad sense, to refer to the three levels of integration in an omnichannel strategy (Saghiri *et al.*, 2017).

The third measure of the construct, the *distribution network [NT]* is an element in the B2B sphere, manufacturers and wholesalers, that differentiates it from the purely retail business-to-consumer (B2C). In a multichannel framework, the impact that the digital channel (web) has on the distribution network and how this affects the manufacturer's multichannel management has been studied (Chung *et al.*, 2012). The model used in this research will make it possible to determine how relevant the distribution network is, but in any case, channel partners should be included in the omnichannel strategy (Hansen and Sia, 2015; Kim and Chun, 2018; Yadav *et al.*, 2017).

The channels available to customers and their level of integration is a determining aspect in omnichannel management, both for sales (Hossain *et al.*, 2020; Wollenburg *et al.*, 2018; Yadav *et al.*, 2017; Zhang *et al.*, 2016), as in after-sales services and reverse logistics (Bernon *et al.*, 2016). Therefore, of the indicators identified in the Delphi that is described later in the methodology section, the channel construct must interrelate the three: the digital channels that are added to the traditional distribution network of the company and the integration that occurs between all of them. Once again, the construct is modeled with formative indicators. A greater number of digital channels does not necessarily imply greater integration or better performance of the distribution network.

Once the construct that may seem most decisive in omnichannel management has been established, the indicators that form it have a direct impact on the company's performance. Thus, sales through digital and traditional channels have an influence on profitability and revenue (Lorca *et al.*, 2019). Although there is some research that qualifies the impact depending on the type of client and product (Bang *et al.*, 2013; Pauwels *et al.*, 2011), or even that a manufacturer's aggregate performance is worse (Chen and Ku, 2013), all of them collect the impact of the channels on performance, so this research establishes the following hypothesis to be confirmed by the model:

H4. Channels have a direct positive effect on omnichannel management.

2.6 Sales and marketing

In omnichannel management, the variables that are probably more characteristic of the B2B field, rather than to omnichannel in retail companies, are the distribution network included in the channel construct, and the sales network that is

included in the “Sales and Marketing” department. The distribution network is part of the previous channel construct and in this model it is not included together with the sales force or intermediaries, as has already been argued in other research on omnichannel (Carvalho and Campomar, 2014). In a specific omnichannel strategy, such as one aimed at achieving superior customer value (Larke et al., 2018) joint sales and marketing actions should be considered (Guenzi and Troilo, 2007).

Sales management [SA] has a more complex impact on omnichannel management, based on the fact that the metrics on which to base this management differ for a supplier from those for a retailer (Ailawadi and Farris, 2017). New digital sales channels do not replace the traditional sales team in physical channels, but rather reinforce it, given that they provide them with more complete information about their customers (prediction capacity) and allow efforts to be focused on those customers that may lead to better results (Lapoule and Colla, 2016; Wengler et al., 2021; Ye et al., 2018).

Regarding *marketing management [MK]*, from a retail multichannel approach, the strategy must vary by channel if greater customer retention is to be achieved (Vrontis et al., 2017). In an omnichannel strategy, marketing strategies become more significant, as this is how improved customer experience and increased loyalty are achieved, which constitute a fundamental objective (Simone and Sabbadin, 2017). Again, the challenge for marketers will be to mitigate the effects of cross-channel cannibalization (Shankar and Kushwaha, 2020), so the marketing plan must include holistic management of all direct and indirect touchpoints (Baxendale et al., 2015).

The link between marketing and sales management, especially in terms of internal or external sales force management, has been reflected in research already from the multichannel field and the adoption of digital channels (Lapoule and Colla, 2016; Neslin and Shankar, 2009). Actually, it is a new challenge for marketing management to manage multiple channels and the effect of sales management to make it profitable (van Bruggen et al., 2010). As in the previous ones, the construct is modeled with formative indicators, assuming in advance that they are not correlated.

There is numerous research that supports the importance of marketing and sales management in the performance of an omnichannel company, maintaining that this effect is also positive in terms of purchase and profit results (Javalgi et al., 2014; Leeflang et al., 2014; Li and Kannan, 2014; Shankar and Kushwaha, 2020). Thus, this research hypothesizes that:

H5. Sales and marketing as a construct have a direct positive effect on omnichannel management.

2.7 Omnichannel management

Omnichannel management in the model is established on three formative indicators identified by the panel of experts (Chin, 1998). The first indicator is the *customer-centric proposition [PR]*. Optimal cross-channel management must involve a customer-centric proposition (Cao and Li, 2015). Similarly, the main references at the omnichannel level have opted for a customer-centric perspective (Lehrer et al., 2018; Simone and Sabbadin, 2017). Thus, in an omnichannel strategy, the information and

the product provided to the customer is the most important factor (Bell et al., 2014). Taking customer loyalty as the principal variable in omnichannel management, this loyalty can only be achieved through a customer-focused approach (Lemon and Verhoef, 2016; Russo and Confente, 2017a). The customer-centric proposal is therefore a principal driver in omnichannel management (Gupta and Ramachandran, 2021; Kersmark and Stafflund, 2015).

Regarding the *360-degree view [VI]* of the client, omnichannel management must be based on the knowledge of the client's behavior in all channels, provided by the data collected from him and advanced analysis of such data (Brynjolfsson et al., 2013; Grewal et al., 2017; Gupta et al., 2021; Leeflang et al., 2014; Mirsch et al., 2016). This dimension of omnichannel management, the 360-degree view, is what facilitates increased customer loyalty (Simone and Sabbadin, 2017), and has a direct impact on value creation (Fernández-Rovira et al., 2021; Hossain et al., 2021).

The adaptation of the *portfolio [PF]* of services and products to each client is the aspirational element that defines omnichannel management, in aiming to generate a unique experience and greater loyalty (Larke et al., 2018). The companies intend, through omnichannel management, to achieve individualized marketing that can adapt the portfolio to each client (Gensler et al., 2012; Simone and Sabbadin, 2017).

Once again, the construct has been defined as formative because a correlation between the three indicators is not expected. A client-centric proposition does not necessarily imply that the portfolio can be tailored or that a full 360-degree view of the client has been obtained.

In the scientific literature, it is argued that good omnichannel management has a direct impact on customer loyalty and satisfaction, and therefore on their purchase intention (Hoehle et al., 2018; Russo and Confente, 2017b). Some research directly addresses omnichannel loyalty and the omnichannel experience to reinforce that good omnichannel performance directly impacts customer loyalty and experience (Peltola et al., 2015; Simone and Sabbadin, 2017; Yadav et al., 2017). It can be assumed that good omnichannel performance seeks to improve the customer experience and customer loyalty as the ultimate goal (Kumar et al., 2019; Larke et al., 2018; Min, 2021). Thus, this research hypothesizes that:

H6. Omnichannel management has a direct and positive impact on customer performance.

2.8 Customer performance

Based on the literature, we can state that customer performance should be considered as an indicator of good omnichannel performance (Cassab and MacLachlan, 2006; Fink et al., 2008; Hoogveld and Koster, 2016). This can be measured both by customer loyalty (Akrouf and Diallo, 2017) and by the experience of the consumer – or industrial buyer, in our case (Graca et al., 2015).

Customer loyalty [LO] is not only one of the main measures of omnichannel management, but one of its main purposes, as increased customer loyalty is necessary if an improvement in sales is to be achieved. In retail, omnichannel aims to win new customers and retain existing ones, improving their loyalty as a

result of their greater satisfaction with the service offered (Simone and Sabbadin, 2017). At the model level, this research has included both loyalty and customer engagement, that is, how motivated the customer is to buy the brand (Kumar et al., 2019; Lemon and Verhoef, 2016; Ostrom et al., 2015). Customer loyalty is a target variable for performance improvement in multichannel environments (Neslin et al., 2006; Ramaseshan et al., 2013). In an omnichannel strategy, such loyalty will be favored by adding digital channels to traditional ones, as it increases customer convenience (Cao et al., 2016).

Customer experience [EX] is identified as a separate construct for omnichannel purposes (Lemon and Verhoef, 2016). It should be said that the model comprehends the total customer experience, not only the customer experience of the digital channels (Chatzopoulos and Weber, 2018) or customer performance (Rosenzweig et al., 2003; Simone and Sabbadin, 2017). In the academic literature, customer experience and customer behavior are referred to as one of the most important research challenges in the omnichannel field (Weber and Chatzopoulos, 2019). In this area, it has been shown that a good user experience has a positive effect on the use of omnichannel services (Shen et al., 2018). Omnichannel management seeks to increase customer performance and purchase intention in all situations (Herhausen et al., 2015; Hoehle et al., 2018; Hübner et al., 2016).

In this case, customer performance has been defined with reflective indicators since the observable variables are expressed as a function of the construct, in such a way that they reflect or are manifestations of the construct. Therefore, the latent variable precedes the indicators in a “causal” sense. The model assumes that both indicators would covariate and describe the customer performance.

3. Material and methods

Given the novel nature of the subject and the paucity of relevant literature, it was also advisable to broaden the focus to receive the most comprehensive range of inputs possible. Table 3 shows a summary of the literature review with the sources of the items and the constructs of the model presented. The process of obtaining the items has been carried out using a Delphi.

A Delphi process was therefore conducted to reach a consensus as to the indicators that should form part of the model. The model has been established based on the literature review, using a traditional partial least squares structural equation modeling (PLS-SEM) modeling approach. Once the model had been constructed, the technique of PLS-SEM was used to analyze and test the research hypotheses.

The Delphi process had been carried out with a panel of 30 experts, from 17 different countries, to reach a consensus on the indicators that should be part of the model. In preparing that panel, more than 1,000 executives from around the world were contacted. The first Delphi round was sent to 455 executives, of which 83 (18.2%) agreed, and the panel was finally limited to 30 experts (6.6% of the total). Tables 4 and 5 show the distribution of the sample.

PLS-SEM is a variance-based method that estimates composites representing latent variables in path models (Hair et al., 2016). PLM-SEM has been chosen because the objective of the research is oriented toward prediction, that is, it is

intended to verify the predictive power shown by the model with respect to omnichannel management (Chin et al., 2003). Likewise, PLM-SEM is prescriptive when, as in this research, the hypotheses are derived from a macrolevel theory of which not all the relevant or outstanding variables are known. That is, the theory is not solidly developed (Alonso-García et al., 2021a), and the manifest variables present different levels of measurement. In addition, the fact that the measures are not fully developed because they come from Delphi experts and not having a very large sample, again points to better use PLM-SEM than other types of techniques more oriented to confirmatory research, such as covariance structural equation modeling (Richter et al., 2016; Vinet and Zhedanov, 2011). To perform the analysis, SmartPLS has been selected from the different software packages available (Hair et al., 2016).

More than 1,000 executives with a C-level profile (chief executive officer [CEO], chief marketing officer [CMO] or CDO), from manufacturers and wholesalers, in various industries worldwide, were contacted. The sample has thus been expanded to a total of 142 C-level executives. After filtering those answers that are complete and applicable to the scope of the investigation, the final sample size is 124 executives. This far exceeds the minimum number for a sample, according to the ten times rule (Hair et al., 2016), and therefore reinforces the validity of the model.

The questionnaire used a five-point Likert scale that asked how each variable affected long-term omnichannel management in companies. Tables 6 and 7 show the distribution of the sample.

4. Results

4.1 Assessment of the measurement model: reliability and validity

The collinearity between the formative indicators that make up a variable should be investigated using the variance inflation factor (VIF). Table 8 shows that the VIF values for the indicators range between 1.058 and 1.202, suggesting that multicollinearity is not a problem in our data as it is below the threshold of 5 (Hair et al., 2016).

The individual reliability of the item is evaluated by examining the loads (λ), or simple correlations for the reflective indicators, and the weights for the formative ones. In this respect, for an indicator to be accepted as part of a construct, it must have a load equal to or greater than 0.707 (Carmines and Zeller, 1979). As shown in Table 8, the loadings of the two reflective indicators of the model, EX and LO, exceed this limit and therefore no “item cleaning” applies (Barclay et al., 1995). Regarding the formative indicators, when evaluating their weights, BR, CU, MG, NT and VI have a lower relative importance in the creation or formation of their respective latent variables than the rest of the indicators (Chin and Newsted, 1998; Hair et al., 2016).

To carry out the assessment of the reliability we follow the composite reliability indicator (ρ_c) of the construct (Bacon et al., 1995). The composite reliability for customer performance has a value of 0.780, above the threshold of 0.7, which gives reliability to the investigation (Ab Hamid et al., 2017). It should be noted that the simulation of the model with the formative constructs changed to reflective, shows that the composite reliability does not obtain significant values,

Table 3 Constructs, items and sources

| Items | Acro. | Sources |
|------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Brand strategy | BR | Piotrowicz and Cuthbertson (2014), Verhoef <i>et al.</i> (2015); Neslin <i>et al.</i> (2014), Baxendale <i>et al.</i> (2015); Hansen <i>et al.</i> (2008) |
| Corporate culture | CU | Grewal <i>et al.</i> (2017), Larke <i>et al.</i> (2018); Guenzi and Troilo (2007), Chaffey (2010); Lewis <i>et al.</i> (2014), Hansen and Sia (2015); Ritala <i>et al.</i> (2021) |
| Innovation strategy | IV | Markovic <i>et al.</i> (2021), Obal and Lancioni (2013); Tsai <i>et al.</i> (2013), Simone and Sabbadin (2017); Musso (2010) |
| IT management | IT | Brynjolfsson <i>et al.</i> (2013), Simone and Sabbadin (2017); Verhoef <i>et al.</i> (2017) |
| Leadership management | MG | Chaffey (2010), Hoogveld and Koster (2016); Simone and Sabbadin (2017), Grewal <i>et al.</i> (2017); Schwarzmüller <i>et al.</i> (2018); Ruiz-Alba <i>et al.</i> (2019), Simone and Sabbadin (2017) |
| Digital channels | CH | Straker <i>et al.</i> (2015), Avery <i>et al.</i> (2013) |
| Channel integration | IN | Beck and Rygl (2015), Cai and Lo (2020); Hübner <i>et al.</i> (2016); Rigby (2011), Neslin <i>et al.</i> (2006); Saghiri <i>et al.</i> (2017), Saghiri <i>et al.</i> (2017); Verhoef <i>et al.</i> (2015), Herhausen <i>et al.</i> (2015); Hossain <i>et al.</i> (2020), Shen <i>et al.</i> (2018); Gallino <i>et al.</i> (2017), Herhausen <i>et al.</i> (2015); Simone and Sabbadin (2017) |
| Distribution network | NT | Rosenzweig <i>et al.</i> (2003), Chung <i>et al.</i> (2012); Ailawadi and Farris (2017), Hansen and Sia (2015); Kim and Chun (2018), Yadav <i>et al.</i> (2017) |
| Marketing management | MK | Vrontis <i>et al.</i> (2017), Simone and Sabbadin (2017); Shankar and Kushwaha (2020), Baxendale <i>et al.</i> (2015) |
| Sales management | SA | Ailawadi and Farris (2017), Simone and Sabbadin (2017); Lapoule and Colla (2016), Wengler <i>et al.</i> (2021); Ye <i>et al.</i> (2018) |
| Portfolio | PF | Larke <i>et al.</i> (2018), Gensler <i>et al.</i> (2012); Simone and Sabbadin (2017), Herhausen <i>et al.</i> (2015); Bhatnagar and Syam (2014) |
| Customer-centric proposition | PR | Cao and Li (2015), Bell <i>et al.</i> (2014); Lemon and Verhoef (2016); Russo and Confente (2017a); Gupta and Ramachandran (2021); Kersmark and Staflund (2015) |
| 360-degree view | VI | Brynjolfsson <i>et al.</i> (2013), Grewal <i>et al.</i> (2017); Gupta <i>et al.</i> (2021), Leeflang <i>et al.</i> (2014); Mirsch <i>et al.</i> (2016), Simone and Sabbadin (2017); Fernández-Rovira <i>et al.</i> (2021); Hossain <i>et al.</i> (2021), Zhang <i>et al.</i> (2009) |
| Customer experience | EX | Lemon and Verhoef (2016), Chatzopoulos and Weber (2018); Rosenzweig <i>et al.</i> (2003), Rajamma <i>et al.</i> (2011); Simone and Sabbadin (2017), Weber and Chatzopoulos (2019); Herhausen <i>et al.</i> (2015), Hoehle <i>et al.</i> (2018); Hübner <i>et al.</i> (2016) |
| Loyalty | LO | Simone and Sabbadin (2017), Kumar <i>et al.</i> (2019); Lemon and Verhoef (2016), Ostrom <i>et al.</i> (2015); Neslin <i>et al.</i> (2006), Ramaseshan <i>et al.</i> (2013); Cao <i>et al.</i> (2016), Grewal <i>et al.</i> (2017) |

Table 4 Delphi sample distribution (21 of 30 are manufacturers)

| Area | Function | Total |
|-------------|----------|-------|
| Marketing | CMO | 7 |
| | CDO | 9 |
| Management | CEO | 5 |
| Sales | CSO | 6 |
| Operational | CLO | 2 |
| IT | CIO | 1 |

Table 5 Delphi sample distribution in 17 countries and 14 different industries

| Regions | Total |
|---------------|-------|
| Africa | 1 |
| Asia | 3 |
| Europe | 16 |
| North America | 7 |
| Oceania | 1 |
| South America | 2 |

Table 6 Sample distribution (98 of 124 are manufacturers)

| Area | Function | Total |
|-------------|----------|-------|
| Marketing | CMO | 41 |
| | CDO | 16 |
| Management | CEO | 18 |
| | CFO | 3 |
| | CHR | 2 |
| Sales | CSO | 21 |
| Operational | COO | 11 |
| | CLO | 5 |
| IT | CIO | 7 |

Table 7 Sample distribution in 35 countries and 32 different industries

| Regions | Total |
|---------------|-------|
| Africa | 1 |
| Asia | 14 |
| Europe | 74 |
| North America | 26 |
| Oceania | 4 |
| South America | 5 |

especially for the omnichannel management and strategy construct, with values of 0.672 and 0.682, respectively. In this way, we can validate that they remain formative in the model.

The assessment of convergent validity is carried out by the average extracted variance (AVE). It is recommended that AVE be greater than 0.50 (Fornell and Larcker, 1981). The AVE value in the customer performance construct is 0.640, which exceeds the minimum threshold.

4.2 Assessment of the structural model

A measure of the predictive power of a model is the R^2 value for the dependent latent variables. This measure should be greater

Table 8 Evaluation of the measurement model

| Construct | Items | Weight | Loading | VIF | R^2 values |
|----------------------|-------|--------|---------|-------|--------------|
| Strategy | BR | 0.274 | 0.414 | 1.032 | |
| | CU | 0.121 | 0.362 | 1.088 | |
| Management | IV | 0.879 | 0.977 | 1.118 | |
| | IT | 0.902 | 0.913 | 1.123 | 0.190 |
| Channels | MG | 0.226 | 0.524 | 1.123 | |
| | CH | 0.723 | 0.899 | 1.142 | 0.118 |
| Sales and marketing | IN | 0.389 | 0.611 | 1.084 | |
| | NT | 0.262 | 0.455 | 1.058 | |
| OM | MK | 0.635 | 0.864 | 1.202 | 0.159 |
| | SA | 0.555 | 0.819 | 1.202 | |
| Customer performance | PF | 0.592 | 0.678 | 1.056 | 0.268 |
| | PR | 0.656 | 0.762 | 1.171 | |
| | VI | 0.200 | 0.237 | 1.158 | |
| | EX | 0.650 | 0.820 | | 0.205 |
| | LO | 0.597 | 0.779 | | |

than or equal to 0.1 (Hair et al., 2016). As shown in Table 8, all the R^2 values exceed the minimum variance, the Channels construct being the one with the lowest value, namely, 0.118.

According to an evaluation of effect sizes, levels of f^2 can be observed as a test or indication of the effect that in the structural domain is due to a latent predictor variable (Chin and Newsted, 1998). The model shows that all latent variables have a large effect, except “management” on “channels,” which are close to the threshold of 0.15; and “channels” on “omnichannel management,” where each has a small effect.

According to an evaluation of path coefficients and their significance levels, to be considered significant, the standardized path coefficients (β) should reach a value of at least 0.2, and ideally be above 0.3 (Chin, 1998). Following this last indicator, an empirical rule can be followed according to which a predictor variable should explain at least 1.5% of the variance in a predicted variable (Falk and Miller, 1992; Hair et al., 2016). As shown in Figure 2, all the β coefficients meet the required minimum of 0.2 and, in fact, exceed 0.3, except the one from “channels” to “omnichannel management” which is 0.270. It can therefore be concluded that $H1$, $H3$, $H5$ and $H6$ are supported in the model. The most significant is $H6$, as omnichannel management explains more than 23% of the variance in customer performance. Regarding $H2$, the hypothesis is also supported by explaining management more than 12% of the variance of channels. Finally, $H4$, even being the predictive relationship with the lowest coefficient, is still supported, as it explains more than 8% (0.303×0.270) of the variance of omnichannel management according to the correlations shown in the Table 9.

According to an evaluation of the overall fit of the estimated model, to estimate the precision of the PLS estimates, a nonparametric technique such as bootstrap is used (Efron and Gong, 1983). The results are shown in Table 10.

The general fit of the model should be evaluated with a saturated structural model by investigating the discrepancy between the empirical and model-implied variance-covariance matrices of indicators (Benitez et al., 2020). Thus, the standardized root mean square residual (SRMS) value is at the limit of 0.1 to be considered as a good fit, taking into account

Figure 2 Structural model

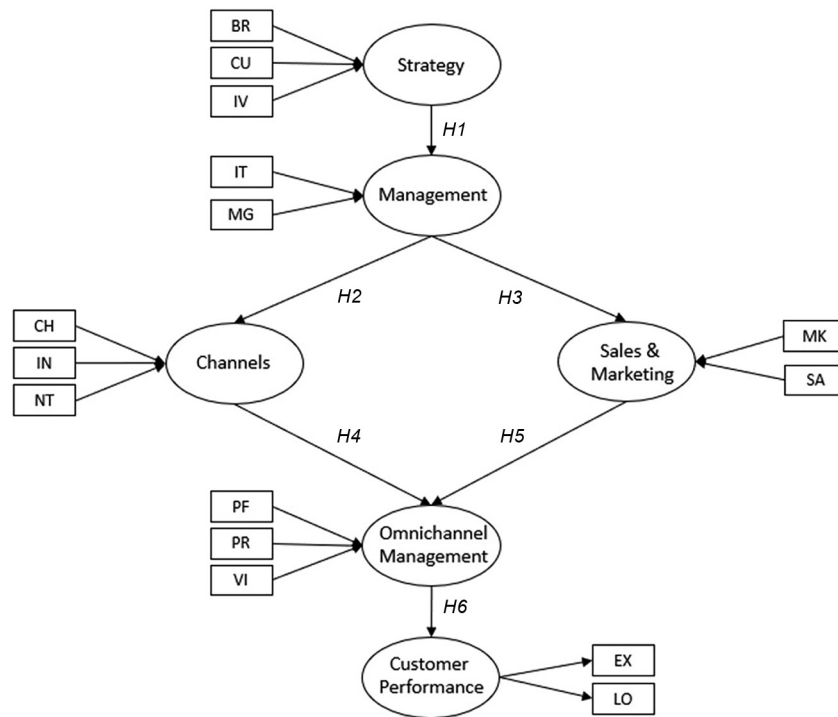


Table 9 β values (path coefficients)

| Predictor variables | β | p-value | Hypotheses | Conclusion |
|-----------------------------------------------|---------|---------|------------|------------|
| Strategy → Management | 0.436 | 0.000 | H1 | Supported |
| Management → Channels | 0.344 | 0.029 | H2 | Supported |
| Management → Sales and marketing | 0.399 | 0.000 | H3 | Supported |
| Channels → Omnichannel management | 0.270 | 0.050 | H4 | Supported |
| Sales and marketing → Omnichannel management | 0.372 | 0.001 | H5 | Supported |
| Omnichannel management → Customer performance | 0.453 | 0.000 | H6 | Supported |

Table 10 Model fit (bias-corrected and accelerated bootstrap, using two-sided significance test and 5,000 subsamples)

| Value | Model | Original sample | Sample mean | 95% | 99% |
|-------|-----------------|-----------------|-------------|-------|-------|
| SRMS | Saturated model | 0.092 | 0.077 | 0.093 | 0.102 |
| SRMS | Estimated model | 0.107 | 0.084 | 0.100 | 0.109 |
| d_uls | Saturated model | 1.025 | 0.718 | 1.048 | 1.255 |
| d_uls | Estimated model | 1.364 | 0.848 | 1.189 | 1.421 |
| d_G | Saturated model | 0.289 | 0.228 | 0.316 | 0.370 |
| d_G | Estimated model | 0.334 | 0.247 | 0.343 | 0.397 |

that it is a goodness-of-fit measure for PLS-SEM and is one of the most reliable indicators of model misspecification (Henseler et al., 2014). Regarding the difference between the covariance matrix implied by the model and the empirical covariance matrix, both the d_uls (squared Euclidean distance) and d_G (geodesic distance) are shown in Table 10. In the model, all the values of the original sample in the

saturated model are lower than the upper bound 95% point. That is, it can be said that the model fits well as the discrepancy is so small that it can be purely attributed to sampling error ($p > 0.05$) (Dijkstra and Henseler, 2015). Additionally, it is recommended to evaluate the fit according to the estimated model as it is a model that is based on a total effect scheme and considers the structure of the model. In this restricted version of

the fit measure, both SRMS and d_{ULS} do not meet the criteria for the upper bound at the 95% point but do meet the criteria for the 99% point. As expected, the overall fit indicators in the estimated model are worse than those in the saturated model since the specified model still has some degrees of freedom (Benitez et al., 2020).

5. Discussion

5.1 Theoretical implications

As stated in the article, research on omnichannel management in the B2B field is scarce, especially when it comes to the creation of decision-making models. The main contribution of the research, therefore, is the built model itself, since, unlike retail models, it incorporates variables typical of the industrial sphere, such as the distribution network or the sales force. In addition, the variables that had already been included in the retail models, such as channels, are still maintained but within an industrial context.

As a first key contribution, the model demonstrates that good performance in B2B omnichannel management leads to an improvement in the performance of a company's industrial customers. Industrial customers are performing better when there is a greater frequency of purchase and greater spending. Therefore, both loyalty (Akrouit and Diallo, 2017) and customer experience (Graca et al., 2015) are indicators of the performance of this industrial client (Hadjikhani and LaPlaca, 2013; Mudambi, 2002). In addition, based on the results, both indicators have an equivalent weight in the customer performance variable.

As a second key contribution, the model demonstrates that B2B omnichannel management is defined by three indicators. Optimal omnichannel management must involve a customer-centric proposition (Cao and Li, 2015), from which to carry out individualized marketing that tailors the company's portfolio of solutions to suit each client (Gensler et al., 2012). To ensure this, customer knowledge at each touchpoint (360 vision) is essential (Simone and Sabbadin, 2017). These three indicators, namely, a customer-centric proposition, portfolio and customer knowledge at each touchpoint, are thus formative variables for omnichannel management.

As a third key contribution, the principal finding from the model we have constructed is that the principal predictive variable for omnichannel management in the B2B sphere is the sales and marketing construct. This is significantly more important than channels. What is striking is that the weight of the construct on omnichannel management is even higher than the channel construct. Some elements of this construct, such as the sales force, are very characteristic aspects of the industrial field compared to retail and this is the main difference of this model with respect to retail models. Before the measurement, it would be expected that sales management would be partially affected, even negatively, by the possibility that any new digital channel incorporated as part of an omnichannel strategy could cannibalize the sales of offline channels (Simone and Sabbadin, 2017).

The prevalence of the construct "channels" is equally significant. From the indicators identified by the panel of experts, the indicators that make up the "Channels" construct are the incorporation of new *digital channels* in addition to the traditional channels; the *integration* between the new digital

channels and the existing ones; and all the agents involved in the *network/supply chain* in the B2B scenario. Channel integration, however, could have negative elements that affect the general performance (Herhausen et al., 2015), especially due to the costs associated with implementation (Simone and Sabbadin, 2017). The results of the model have finally made it possible to identify the final positive effect of this variable.

Another measure of the construct closely linked to the B2B field, manufacturers, and wholesalers, is the *distribution network [NT]* that differentiates it from the purely retail B2C. However, the model of this research has determined not much relevance of the distribution network in the construct.

5.2 Managerial implications

The main contribution of the research, from a management point of view, is that business managers now have a reference model that allows them to understand the factors that influence the omnichannel management of an organization in a B2B context. This model establishes the principal determinants that should be reinforced at the levels of strategy and management. It should therefore be especially relevant to decision-making by a company that seeks to measure and improve its omnichannel performance.

The second contribution is that the two variables inherent to a B2B model, and not present in a retail model, are the sales force management and the distribution network. Sales force management is key to sales of industrial companies and therefore key to the client's performance, even in multichannel (Neslin and Shankar, 2009). Omnichannel management must consider how new digital channels can improve the relationships between commercial agents and their customers (Lapoule and Colla, 2016). Similarly, the distribution network is an equally specific aspect of the B2B sphere (Chung et al., 2012). The depth of this network, especially for manufacturers, is a factor also under study in relation to omnichannel management (Hossain et al., 2020; Shen et al., 2018). The results of the model show that the management of the sales force has a determining weight in omnichannel management, much higher even than the impact that the adoption of new digital channels or the integration of the channels with each other may have. Therefore, it highlights that the distribution network does not have a determining weight in omnichannel management. This may show that in current omnichannel strategies, solutions that involve the distribution channel, business-to-business-to-business or business-to-business-to-consumer, are underdeveloped, although they are an area of growing interest (Brotspies and Weinstein, 2019).

As a third contribution, a consequence of the previous one, the results show that even though they are not the main predictor of omnichannel management, channels have a direct and significant impact. A manager must be aware that adopting new digital channels adds more value to the organization than improving integration between existing ones or developing the distribution network. This premise is consistent with the formative variables of omnichannel management: the largest source of data on customer behavior is obtained from digital channels and it is in them where the portfolio of services can be adapted in a more agile way according to interest and context particular to each client.

The fourth contribution is that the most important variable in corporate management is IT management. The model demonstrates that this variable is key to good omnichannel performance. Good IT management will facilitate the adoption of new digital channels and also the knowledge of the company of its clients through the implementation of new technologies, including big data and Internet of Things (Fernández-Rovira et al., 2021; von Briel, 2018).

The fifth contribution is that corporate strategy must include innovation strategy, as this is key to good performance in omnichannel management. In fact, it can be considered linked to the previous contribution, as much of the innovation used in implementing omnichannel is technological (Fernández-Rovira et al., 2021; Gupta et al., 2021).

5.3 Limitations and future research

The research is not without its limitations. The model should arguably include control variables such as the size of the company and the industry to which it belongs. Given the novelty of the research and the absence of previous B2B models, a sample of international experts has been consulted, but no adjustments have been made for either the industry or the type of company. As has been described, most are large international manufacturing companies, working in a variety of industries, including automotive, fashion, energy and telecommunications.

Our research gives rise to several opportunities for future research. A clear line of future research would be to limit the sample to a specific industry, or to the position that the company occupies in the value chain (Gessner and Snodgrass, 2015; Heidekrüger et al., 2018). For example, while both belong to the B2B sphere, a manufacturer and its distribution network is very different from a wholesaler selling to small and medium-sized enterprises.

6. Conclusions

This paper fills a research gap, by establishing a reference model for the omnichannel management of an organization in a B2B context. The main determinants and predictive variables of omnichannel management have been defined. The paper also has implications for managers and consultants who want to establish an omnichannel management strategy. The model shows how good omnichannel performance is indicated by the industrial buyer's performance as measured by larger and more frequent purchases. Loyalty and experience are primary measures of this customer performance.

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