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Challenges, Opportunities, and Lessons Learned: Sustainability in Brazilian Omnichannel Retail

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Abstract: This paper reports the focus group results administered with top executives of the Brazilian retailers regarding their omnichannel strategies. This study aimed at analyzing the process of implementing omnichannel strategies and identifying contributions omnichannel has to sustainability. Using qualitative exploratory and a case study design to assess three large Brazilian retailers, we collected information concerning omnichannel implementation associated with processes, technologies, and organizational structure. This study was conducted with top executives in Brazil. Results suggest that the most viable solution, given a company's investment capacity, is implementing an e-commerce platform that results in greater integration, profitability, and sustainability of the whole chain. A discussion on the benefits and outcomes related to the sustainable performance of such companies is also presented. This study answers calls for more research on the retail sector in Latin American countries.

Keywords: omnichannel; information technology; logistics; supply chain; sustainability

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1. Introduction

Retailers are finding it increasingly difficult to gain competitive advantage since markets are saturated and it is hard to differentiate product and price. Therefore, retailers need to come out with different strategies to generate in positive impacts on customer satisfaction [1]. The retail industry is also in constant change, undergoing significant transformations that require companies to continually adapt themselves in order to survive [2]. Retail is evolving at an accelerated rate due to changes made possible by technology advances and constantly-changing consumer behaviors and demands.

Integrating channels is not a distinctive factor anymore but rather a prerequisite of competitiveness [3]. Channel integration requires companies to break down organizational silos and to consolidate and distribute information across their business areas. This integration enables retailers to treat inventory as a shared asset and to facilitate integrated offers across channels [2]. Other benefits of channel integration are: improving financial performance, increasing customer satisfaction and loyalty, customer satisfaction [4], the reduction of inefficiencies of traditional channel-based management approaches [2], and overall sales growth and optimized customer experience [5].

Retail is becoming increasingly important in Brazil, under strong North American influence. The latter offers facilitating processes for retailing, including in-store pickup [6,7], in which a purchase is made online, with reservation and retrieval of the product already available in the store, ship from store, in which a purchase is made online, with delivery

from a physical store, and ship to store [8], in which a purchase is made online and the product is retrieved in the store, with the product sent from a distribution center to the store [6]. To maintain their positions in the market and increase their scales, the largest Brazilian retail companies have adopted sophisticated information and management technologies, contributing to development of the logistics and distribution system in the country. In recent years, the Brazilian context has been marked by technological changes, primarily the advent of the Internet, the economic rise of the lower middle class, digital inclusion policies, increased offerings of physical and virtual channels for selling goods and services, and increased competitiveness among retail companies due to worldwide economic globalization, which has led to rapid changes to consumer expectations, needs, and behaviors.

Mattar [9] argues that changes to Brazilian consumption patterns will continue with the same intensity, influencing relationships with products, brands, and stores. Retail companies can thus no longer manage their channel strategies based on silos and structure new channels without integrating them; they must adhere to the omnichannel culture and ensure it is incorporated completely into the global corporate strategy and organizational culture. Omni-channel retailing is a relatively recent phenomenon that has been transforming the retail landscape [10]. The concept of omni-channel accepts the inevitability of needing to employ multiple channels and is focused on integrating activities within and across channels to correspond to how customers shop [11]. An omni-channel strategy allows customers to shop across channels anywhere and anytime with a unique, complete and seamless shopping experience that eliminates the barriers between channels [12].

Based on a study conducted in Brussels, Rai, Verlinde, and Macharis [13] argue that customers live in an omnichannel environment in which they use online and offline channels to shop, the consequence of which is an increase to orders sent to customers' homes, challenging urban freight systems in terms of efficiency and sustainability. Development of the omnichannel strategy is feasible, involving use of processes and technologies that encourage client interactions with a company's physical and virtual channels during the shopping experience [6,7,13]. Lee, Chan, Chong, and Thadani [14] show that the omnichannel strategy influences client involvement positively, leading to subsequent purchases. Their study highlights the importance of client involvement in relation to omnichannel retailing, and provides retailers with actionable insights regarding attracting clients across all channels.

Retailers have acknowledged the importance of omnichannel strategies. However, there is a considerable difference between the omnichannel capabilities most retailers have and the service consumers are looking for nowadays [15]. As more companies adopt an omnichannel approach, however, customers are beginning to see it as a standard rather than a competitive advantage; consequently, forcing companies to search for strategies to implement it most effectively [16].

An increasing number of companies are experiencing greater pressure from stakeholders to incorporate green practices into operations and supply chain practices [17]. The stakeholder pressure adds complexity to the management of an already challenging multi-tiered supply chain. In a study performed with manufacturing organizations, Huang et al. [18] found out that regulatory and customer pressures affect sustainable organizational responses, being these pressures probably the two most important types of institutional pressure. Empirical evidence shows that pressure from customers stimulates businesses to adopt green management practices, which may improve competitiveness by differentiating their products from those of their competitors and by enhancing their reputation and image [19]. Consumers' response to and preferences towards environmentally responsible products put pressure on firms to adopt green practices such as carbon emissions reduction [20] and recycling.

One of the ways of achieving this competitive advantage is by using technological innovations like digitalization and automation especially when adopted in logistics, transport and purchasing processes [21,22], since logistics activities have a prominent environmental impact on both in-store and online purchasing processes, accounting for more than 75% in

these two processes [23]. Another way of achieving competitive advantages is by adopting more sustainable processes that call the attention of customers who are concerned with sustainability. Fast-speed demand increases the total emissions and costs due to the strong relationship between fast-shipping and less than truckloads. When implementing an omnichannel approach, companies should be able to measure the impact of fast-shipping policies and effectively communicate this impact to customers in order to slow down the increasing demand for these types of services [16]. In addition, companies should guarantee that the sustainable impacts of the omnichannel adoption are smaller than the impacts before its implementation.

In addition, when implementing an omnichannel strategy, companies should look for the long-term cooperation between retailers and their suppliers. Both parties must take a longer-term, system-wide approach to supply chain management to overcome impediments to sustainability [24]. In the past decades, the focus of academic research in the sustainable supply chain management (SSCM) literature field has gradually converged from either environmental topics and performance outcomes to greater appreciation for a network-oriented view [25]. Therefore, it is not enough for an organization to develop innovative and sustainable products, but further interventions must concern the whole way of doing business [26].

Many studies in the literature suggest that omnichannel development, above all, contributes to reducing operational costs and expenses at points of sale, increasing the quality of services provided and sales associated with business profitability, greater customer satisfaction, and thus greater purchasing convenience [27–29]. There is an opportunity to reduce logistical costs and a benefit in preparing a company's supply chain for the omnichannel challenge, since the strategy of the chain, in light of a new configuration of facilitators, strategy, agility and visibility, must be a priority for consumer goods and retail companies [13]. A reduction to logistics costs also contributes to reducing environmental influences. Since transportation is a primary contributor to climate change and air pollution emissions that affect global and local environments negatively [13], adoption of an omnichannel model meets the sustainable demands of various stakeholders (e.g., consumers, government, and partners). Research suggests that when a company adopts an omnichannel strategy, there is greater trust and collaboration among business partners, maximizing the cost–benefit ratio and increasing speed, visibility, safety, and sustainability of all business processes [13,27,30], which extend sustainability benefits to supply chain partners. The current study analyses implementation of omnichannel strategies in three Brazilian retail companies. Information was collected using focus groups among professionals from disparate sectors involved throughout implementation. Identification and analysis of information collected during focus groups addressed several research questions:

- RQ1: What technologies are involved when implementing an omnichannel model, and how do they contribute to its success?
- RQ2: What changes have companies made when adopting the omnichannel model?
- RQ3: What lessons were learned and critical success factors discovered when implementing omnichannel models?
- RQ4: What contributions does the omnichannel model make to sustainability?

Omnichannel reflects the reality that while online is the fastest-growing component of retail in many countries, offline retailing still anchors the sector. China, for example, is on target to become the largest global e-commerce retail market, but offline retail there also remains strong and significant [31]. Previous research has shown that the academic discussion on omnichannel retailing has its geographical focus on investigations in Europe and North America and that empirical data from emerging economies such as the countries in South America and Africa have not been included in the academic discussion yet. Thus, it can be assumed that omnichannel retailing has been mainly discussed from a developed countries perspective [32]. In addition to presenting a roadmap and lessons learned from the implementation of omnichannel that is suitable to several companies, this study contributes to the extant literature by presenting a multiple-case analysis of omnichannel

adoption in the Brazilian retail sector. Previous studies found that the expansion of retailing activities and new opportunities will mostly occur in fast-developing, emerging countries [33]. Fastoso and Whitelock [34] have recently called for more research on Latin American countries stating that no attention has been specifically paid to this region, which is surprising given the economic importance of Latin America. Brazil is an emerging market and one of the highest priority markets for retail expansion.

In addition to what has been presented, this study has other contributions to both research and practice. For researchers, the study relates omnichannel implementation to influences on sustainability, and fills a gap regarding a lack of studies on implementation of omni-channels. For marketing professionals, this study collected and analyzed information concerning implementation of a sustainable omnichannel strategy related to the processes, technologies, and organizational structures in a large country whose regions have distinctive characteristics. Lessons learned from such implementations will help marketing professionals with implementation of omni-channels.

2. Theoretical Background

Channels refer to different ways of interaction with customers, and different types of channels represent the way product or information is transferred [35]. While in the past years there was a clear distinction between brick-and-mortar and online stores, the recent trend of channel integration has led the separated sales channels to interweave with each other. Multi-channel means bricks and mortar stores and Internet websites, or simply online and offline channels [35]. Multi-channel integration involves integrating promotions, products, prices, transactions, information, services and processes [36].

The "multichannel" term starts to be replaced by the "omni-channel" term, first introduced in 2009 [37]. Although omni-channel retailing has developed from multichannel retailing, they differ on various aspects, such as implementation objective, operation mode, and consumer experience [36]. Multi-channel distribution includes various ways to reach various customer segments with different channels. In a multi-channel system, channels operate in a merely parallel but rather uncoordinated manner [32]. In the omni-channel environment, customers move freely among channels (online, mobile devices, and physical store), all within a single transaction process [38]. Omni-channel retailing integrates multiple channels to enable customers to simultaneously harness all available online and offline retail channels when shopping, providing them with a seamless experience through the provision of a borderless cross-channel service system [5].

Consensus in the literature suggests that the omnichannel is an evolution of the multichannel, since it involves a vision of integration during which the purchasing process is developed through all existing distribution channels simultaneously [11,13,39], and the customer's purchasing experience is valued more than the purchasing channel [40,41]. Wilding [42] argues that the primary difference between multichannel and omnichannel relates to integration, since the latter represents a seamless service, reflecting the quality of the brand during both purchase and delivery.

For omni-channel retailers, all channels serve all of their customers and should support the same goal of retaining the firm's consumers by making them satisfied. Consumers should be able to obtain services from any channel and still use their primary unique customer identity without needing to do the same account set-up and search tasks that they have done in other channels previously [36]. Omni-channel retailing enriches the customer experience, and provides an integrated sales experience that combines the advantages of physical stores with the enhanced information level provided by online shopping [32]. In omni-channel, customers consider all the retailer's sales and marketing channels as one entity, and the shopping experience is seamless regardless of which channels the customer uses [43]. To Beck and Rygl [44], omni-channel retailing is "the set of activities involved in selling merchandise or services through all widespread channels, whereby the customer can trigger full channel interaction and/or the retailer controls full integration of all channels". The separation between digital and physical channels makes no sense since customers

access them interchangeably and expect to find the same products, services, conditions, and attention [12]. In a well-integrated retailing environment, consumers perceive more empowerment and have more trust and satisfaction, and stronger shopping intention to the benefit of retailers [36].

There are clear benefits to an omni-channel for consumers. However, for retailers and suppliers, it poses unique challenges [3]. Several unique aspects make the companies' operations more complex and challenging [4]. Omni-channel businesses face problems such as cross-channel free riding, immense competition from pure online retailers in terms of product pricing due to their need to maintain their costly physical infrastructures [45]. Showrooming, defined as customers' ability to evaluate products and services firsthand and use mobile technology while they are in store to compare products for potential purchase via number of channels threatens the efficiency of the integration of multiple channels [5]. In showrooming, consumers visit local stores to inspect products before purchasing online. This free riding typically leads to a loss for the retailer who services a consumer in the pre-purchase phase, but the exchange itself does not produce revenue [45]. Furthermore, stronger integration between online and offline communication channels raises concerns about data security, ethical violations, and privacy infringements. In addition, a major challenge in developing omni-channel capabilities will be adjusting the organizational mindset and developing human omni-channel skills [2].

One of the biggest challenges for retailers is analyzing all available channels and being able to work among them synergistically and in a coordinated way, predicting the integration of processes like logistics, storage, distribution, customer service, data bases and marketing. Thoma [46] suggests that if a retailer cannot deliver a total, unified purchase experience to a customer, customer loyalty to the brand and sales are threatened. Hardgrave [47] argues that it is necessary for omnichannel retailers to create an operation capable of delivering in real-time, with efficient and cost-effective inventories so that a customer's purchase experience is formed. A study from Capgemini Consulting [48] suggests that one supply chain obstacle to making omnichannel strategies feasible is inventory visibility. Identification, tracking, and management of inventories are vital competencies in omnichannel retailing. Thus, chain visibility and inventory precision are fundamental to omnichannel operations, allowing a retailer to control inventory at all times and thereby validating creation of mobile channels. Recent advances in artificial intelligence and predictive planning offer strong support for retailers when making decisions, assuming work has already begun regarding collecting and organizing consumption data and consumer profiles.

Brynjolfsson, Hu, and Rahman [49] suggest that technology represents an agent responsible for meeting the needs of retailers and supply chain partners who are rethinking their competitive strategies, since it provides overlap between digital and physical channels and allows customers access to that which was previously unknown to them. Retailers need to properly define not only which technologies they will invest in, but also how they will encourage their acceptance. In-store technology needs to create a new integrated customer experience, so customers perceive that the new omni-channel stores facilitate and expedite their shopping journey [38]. Technologies that enable cross-channel integration from an operational perspective will become important. In particular, technologies that enable real-time inventory management and information dissemination across the organization are important [2]. Similarly, emergent technologies like augmented and virtual reality as well as wearables could be merged with omni-channel environments to deliver an immersive shopping experience that tends to lock in consumers [45].

The success of an omnichannel links with better integration of IT and the supply chain, but close collaboration and constant sharing of information between retailers and manufacturers are vital to achieving objectives. In a context of constantly shrinking deadlines and customers expecting the same degree of inventory and service, regardless of the channel, companies must have an IT infrastructure that allows cross-channel visibility and a free

flow of information along the entire value chain [11,39,41]. This study thus identifies the technologies involved during omnichannel adoption and their contributions to success.

3. Methodology

According to Yin [50], this study is characterized as exploratory and qualitative, using a case study as a research instrument and the focus group technique to obtain data. Qualitative research methods are used when the researcher is interested in better understanding a particular topic from the perspective of the participants in order to develop a survey that will be applied to a larger and more generalizable sample [51].

Focus groups usually include a semi structured session with multiple participants, an informal setting, moderation by a facilitator, the use of general guideline questions and a means to record the information generated through group interaction. Members of the focus group session and the facilitator discuss and develop an understanding of the experiences by responding and sharing comments. Most focus group sessions use broad questions as a guide for the discussion. Then, the focus is narrowed down to a more specific aspect of the study [52]. Focus groups rely on the interaction of the group members to formulate answers to the researcher's questions. Questions should be truly open-ended and neutral, clear, and attain to one topic at a time [51]. Focus groups require a substantial commitment by numerous domain experts, independent judgement by the researcher to interpret and provide outputs that can be challenging to validate. The expertise of the participants is very important [53]. When new data provide no new information and themes, data saturation is reached. Analysis of the session can be done with data transcripts. The room where it occurs should be comfortable and afford privacy so few interruptions occur [52]. Results of the analyses can be taken back to interviewees to ensure the credibility of the analytic process [51].

This study assesses three large Brazilian retail companies (i.e., three cases) that operate in clothing, footwear, perfume, household items, furniture, appliances, electronics, and informatics industries. These companies implemented the omnichannel model, underwent a process of changes to their operating strategy, and are aimed at offering their clients a national retail experience of excellence.

Focus group were carried out with the participation of sixteen professionals (executives and managers) from unit departments such as IT, logistics, supply chain, marketing, purchasing, and quality. In each company, one focus group session was carried out, with the participation of 5–6 professionals. These professionals have been working in these companies for between 6 and 18 years. At the beginning of each session, participants were asked for authorization to record the session. All of them agreed. All sessions were recorded and transcribed and uploaded into the NVivo software for data analysis.

The objective of using the focus group technique is to obtain as much information as possible from a group of experts on a specific topic. In order to do so, open and prespecified questions help guide the discussion among participants. Questions that guided the focus groups were based on the research questions reported previously. The open questions are:

(1) How do you assess the new retail scenario from the perspective of market logistics?
(2) What are the main market logistics decisions your company has faced?
(3) Describe how your company manages the value chain with omnichannel.
(4) Which infrastructure/technology is required for omnichannel deployment?
(5) What are the key success factors (Distributed order management; Customer service Distributed order management; Inventory management; Delivery logistics involving Physical Store) in omnichannel implementation?
(6) Which gaps have been identified in omnichannel implementation so far?
(7) What are the main strengths, weaknesses, threats and opportunities associated with the omnichannel implementation?
(8) What else have you learned with the omnichannel implementation process?
(9) Which have been the main challenges in omnichannel implementation?

(10) Which contributions does the omnichannel model make to sustainability?

4. Results

4.1. Companies' Profiles

The three Brazilian retail companies went through major transformations and expansions in recent years that involved adoption of the omnichannel model. In this section, these companies are discussed using modified names to preserve confidentiality.

Alpha Company is a retail sales leader in Brazil in housewares, tools, climatization, and portable electronics industries. It has hundreds of physical stores in Brazil in the main states (though not all) and has had an online portal with deliveries throughout the country for more than 10 years, with double-digit annual growth. The company started from the premise that a distribution channel exists to serve the client and create a competitive difference by providing superior service in comparison to competitors. Its challenge was to offer better service at the lowest cost, and thus to remain competitive, the design of the distribution channel began with the service it wanted (or needed) to provide, not with cost or budget.

One of the largest retailers in Brazil and concentrated in the central and southern regions of the country, Beta Company has a strong online sales strategy in which more than 55% of sales are made on the company's website. It focuses on furniture, electronics, home appliances, household items, clothing, and footwear. An emphasis on valuing employees and suppliers, and total focus on customer satisfaction, is clear in the company's culture. Its mission is to be a supplier of products and solutions for its customers' daily lives, with the best cost benefit, in a self-service strategy. Given the company's intense, ongoing investment in technology, it is natural that part of the company's expansion plan was e-commerce and the omnichannel strategy. The Beta Company already had some features, such as online shopping with pickup by the customer at a physical store. Several methods of offering promotions and service models to meet online demand were used, including sending the product from a central warehouse or directly from a supplier, if that were the case (i.e., direct marketplace). Some gaps in these issues were evident, especially having discretion to make decisions and influencing customer behavior toward the most profitable model. This point was critical, since online customers were accustomed to free shipping provided for a long time by the majority of Brazilian retailers. The company's strategy depended on intelligent logistics, with the ability to structure solutions in a real search for the greatest competitive cost for shipping and delivery, involvement and training from the point of sale to shipping, and attention to the accuracy of inventory and service, and meeting these solutions. The Beta Company has recently gone through a process that transformed it into a digital marketplace platform.

A chain of department stores with a strong presence in the central, northern, and northeastern regions of the country, Gamma Company has always been active in furniture, electronics, appliances, and household items, and more recently in clothing, household goods, footwear, and cosmetics. The company had logistics planning management that satisfactorily predicted demand. Purchasing used an aggregated demand model, with conservative stock coverage to minimize stock disruptions. Due to the low representativeness of e-commerce in the global sales share, no exclusive assortment planning strategy for the channel by the commercial area was present.

All companies outsourced a large part of the entire process of transporting merchandise from their distribution centers. When there was an online sale with pickup by the client in any store, a small remuneration was awarded to the physical team in the store to encourage good service, with customization to adapt the after-sales system and monitor such demand. All three companies consider sustainability in their strategy and principles.

4.2. Technologies

Regarding RQ1, the focus group identified the technologies involved when implementing an omnichannel strategy. In theory, they recognized that the omnichannel represented

the greatest opportunity for retail growth, but executing the strategy was highly challenging [5,45]. Once strategic planning was overcome, the supply chain and logistics returned to implementation to guarantee that the omnichannel was incorporated entirely in the global corporate strategy and organizational culture. This topic created huge repercussions in recent years, during which the need for an omnichannel was clearly discovered and discussed within the companies' strategy. How to differentiate the company from its competitors in this model was increasingly discussed, including how to achieve success with implementation based on pillars of growth, profitability, and sustainability of retail businesses. Some technology companies provided technological tools to meet the omnichannel challenge. One was the Order Management System (OMS), a computer program used to enter and process orders that allows customized management of online orders and logistical solutions for companies. All three companies adopted this type of system. Its use and contributions to omnichannel adoption are described below, according to what was observed during the focus groups.

Over time, manufacturers adopted this system to orchestrate complex order processing scenarios, from capture by the supply chain to the moment of delivery. Considering the online retail context, only e-business teams with multiple web-based service centers, or complex delivery and receiving relationships with suppliers, have traditionally invested in Order Management System (OMS) solutions. Nevertheless, companies that rely on OMS to fulfil all functions of registering order data through a centralized repertoire allow their e-business professionals to view the complete order history and purchase behaviors of a customer.

The decision to invest in an omnichannel OMS was seen by the participating companies as a competitive differential for the company, since it plays a role in the customer lifecycle, involving exploration, purchase, and use. Thus, it became an essential technology for e-business professionals, indicating that a company should concentrate on the entire customer experience. Alexander and Blazquez Cano [40] argue that connecting three academic research topics—omnichannel retail, the role of the physical shop, and customer experience—suggests requirements for environments designed to improve the customer experience. Distributed order management is the essence of any OMS, an engine that supplies an interface to capture, process, and configure orders, workflows, and intelligent order routing algorithms in all distribution centers. The processes should be capable of handling a variety of ordering scenarios, such as recurring orders, pre-orders, and digital and service items [7]. In relation to modifying existing orders and, consequently, customer service, a complex series of restrictions and dependencies determine whether orders can be cancelled or altered, in addition to the fact that electronic commerce platforms frequently offer no such authority. Since it has robust customer service tools, only the OMS has true visibility into the post-submission lifecycle of an order, and therefore true authority over whether, when, and how an order can be modified.

Another point emphasized by companies is related to inventory management, since the OMS also acts as a broker and reliable source of inventory data for the entire company. The tool consolidates the nearest available inventory, in real-time, from disparate systems into a single view, providing an overview of the company's inventory that can be used among sales channels to determine whether a product should be made available for sale. Since orders are created in each channel and inventory is reserved, the OMS should consider transition states and make available only inventory that can be promised to a customer.

Since the omnichannel is an investment priority and given that the companies are increasingly focusing on how to develop customized interactions directly between electronic commerce systems and points of sale (e.g., physical shops), the OMS plays a central role in omnichannel architecture, or a bridge that connects them. Integrations must link closely, and they often create complexities when defining how systems interact with inventory information in real-time. Since the OMS has a central repository of inventory and orders, it can perform the complex work of orchestrating all orders and supplying only the information necessary for e-commerce and point of sale to operate efficiently

together. Consequently, order management acquires competencies at providing a purchase experience for the customer, in which retailers can deliver products through the method chosen. The OMS is thus essential to facilitating online orders that are sent from the stores. Such an omnichannel initiative can be very profitable for e-businesses, making it an important business unit in the strategy of large companies. However, the entrepreneurial and innovative bias of such a proposal requires a multidisciplinary team that has strong sponsorship and stakeholder involvement to work. The knowledge of people in IT, supply chains, customer service, marketing, and merchandising, e-commerce, point of sale (retail) management, and project management is thus essential to training a competent staff.

Participants in the focus group reported that ideal implementation of the OMS involves specialized labor and a process review at the organizational level. Companies must pay attention to the high cost of investment in the technology itself, due to budget restrictions. Another factor relates to organizational structure, in which a model of matrices and silos, with little interaction among areas, creates an obstacle to introduction of an OMS, regardless of the tool's quality. A company must evolve progressively to a more agile and collaborative structure, which involves revising necessary behavioral competencies and the meritocratic model. An omnichannel strategy based on OMS depends on close relationship with suppliers; the large, modern retailer must position itself as an attractive place for both sellers and buyers.

4.3. Changes to Operations

Participants reported that their companies conducted technological transformations in recent years to slowly replace all existing systems with more reliable systems in accordance with good market practices. For example, the Enterprise Resource Planning (ERP) of Beta Company was replaced and implemented by the systems supplier of a leading company in the segment. The software used for Distribution Requirements Planning (DRP) and Warehouse Management systems (WMS) are currently from a North American supplier, a world leader in supply chain tools and systems. The e-commerce system implemented was also from a North American company, also a leader in the segment, and the point of sales systems were contracted from a Brazilian company. Other projects, such as virtualization of the company's data servers, physical change of the Distribution Centre (DC), and exchange of the entire set of the company's desktops, occurred between 2012 and 2015.

Considering RQ2, the focus groups revealed that it is possible to identify many common changes during omnichannel implementation. Participants reported that it is necessary to adapt the DCs to deliver the expected degree of service and deal with a variety of products and forms of service in an omnichannel network. To illustrate changes made during implementation, and supporting responses to RQ2, we use four dimensions suggested by the companies that participated in the study, including systems, processes, technology, and management (Table 1).

All such highly complex implementations demanded continuous improvements during integration and implementation, and some systems had to be customized to meet business and corporate requirements. Participants reported that parallel implementation of several systems caused an even greater degree of integration complexity (e.g., the WMS combined with physical changes to the DC and e-commerce, given the complexity of integration with other company systems). They recognized that after implementing the omnichannel model, it might be necessary to implement a project to minimize failures, corroborating Shi et al. [41], who argue that this phenomenon is garnering growing attention in academia and industry due to increasing challenges of serving customers effectively.

Table 1. The roadmap for omnichannel logistics.

System	Process	Technology	Management
IT Staff >> Integrated IT	Hybrid DC: Own inventory, Third Party and Trans-shipment (Cross)	Flow Automation	Customer Centricity
Agile and Scrum (Squads and Tribes)	Pulled Production (Service Level)	Digitalization of Processes	Shared Goals
POC > MVP > Releases	Agile, high-speed process	Picking Tunnel and Shuttle Storage	Digital Culture and Cognitive Thinking
Microservice	Goods-to-Person Process	Wearable Scanning	
Develop × Buy × Collaborate	Multipurpose	Pick/Put to Light	
Integration Layer	PCP subordinated to OMS	Conveyors and Sorters WMS > WMS > WES Predictive Planning	New strategic pillars: Operations Innovation Data Science

To respond to RQ3, the focus groups identified lessons learned and critical success factors for omnichannel implementation. Some lessons learned, along with the category they belong to, were identified during this study and are presented as follows:

- It is impossible to transform an operation that is severely underperforming. If this is the case, it is first necessary to stabilize the operation and equalize the capacity to the demand (Stabilization and organization);
- Revision of systems/infrastructure essentials and redesign of key processes must be conducted (Appropriateness of foundations);
- Step-by-step service of each order must be closely monitored, generating alarms and both corrective and preventive actions when a potential delay arises (Automation of flow);
- Indicators, dashboards, and alarms should be used to ensure service level and costs (Performance control);
- Continuous and lean improvement must be implemented to make the most of the process that is already well-monitored and controlled (Process optimization);
- New ways (options) of serving the customer should be developed and more agile and efficient forms of service introduced, raising performance above the market average (Introduction of new services);
- Information should be shared and available in real-time, for immediate action (Process digitalization);
- Routines should be streamlined; interactivity (Process digitalization);
- A data-driven operation should be built that uses data and statistics intelligently from the operation and business to plan efficiently and predict scenarios to always deliver an impeccable level of service (Process digitalization);
- Exponential increases to capacity, speed, and productivity should be sought (Automation of handling).

Many benefits were obtained by adopting the platform as a strategy, but some benefits were common to all three companies. Regarding sales, there were increases to conversion rates, organic traffic, orders received and approved, and average tickets. Concerning customer commitment, there was greater recovery of online shopping carts that were previously abandoned. In addition to being a complete solution to continuous evolution, there was a reduction in costs that was capable of generating savings in IT investments, and an increase in revenue and profitability. It was clear that the supply chain and its

channels became a strategic pillar (i.e., investment, innovation, and business) and could no longer be seen as just a support system.

Following up on responses to RQ3, participants identified critical success factors when implementing the omnichannel model. The critical success factors are:

- The company should be truly positioned as customer centric;
- The supply chain sector should be repositioned to the status of a strategic pillar;
- The goals of the company should be shared among areas;
- Development of processes should be conducted simply and leanly, including suppliers, and should be part of the company's daily routine;
- The company should have agile methods to digitize and automate processes;
- The company should recognize the importance of progressive work in data science and cognitive thinking;
- Employee behavioral models should align with the transformation (i.e., vision of the whole, entrepreneurial spirit, being a protagonist, making things happen, collaborating and interacting, and getting to know customers and placing them in the foreground).

Responding RQ4, participants reported the benefits of the omnichannel model concerning sustainability. Observing the evolution of the operation's dynamics, they noticed that omnichannel logistics became an important lever for reducing emissions during transportation and distribution for several reasons, including (i) introduction of and customers' strong adherence to the new service modalities, especially when retrieving products from a store, whether an item originated in the DC stock or from the store itself, representing volumetrically more efficient shipping since it takes advantage of the natural supply route from the store to provide the service and improving vehicle occupancy; (ii) when a retailer becomes a digital marketplace platform (Beta company, São Paulo, Brazil), it begins to offer its logistical services to sellers who sell on the platform. Thus, there are no longer several suppliers individually contracting freight to serve customers, and there is a context in which they all serve the customers together using the same logistics network. Again, gains in efficiency and reductions to transportation emissions were observed; and (iii) the search for better service led retailers to bring stock closer to the client, avoiding the fragmented freight of home delivery. Having good stock turnover closer to customers, to then fulfil orders from this location, represented more efficient use of logistical capacities than fragmented freight because it was possible to schedule deliveries better to replenish stocks and fill trucks.

5. Discussion

Retailers' sustainability initiatives reduce the negative impact of products on the environment throughout the supply chain, which has been increasingly demanded by consumers. Consumers expect companies to support social and environmental issues and are willing to change their shopping habits to reduce environmental impact; for example, increased packaging for home delivery. Retailers can follow a niche strategy focusing on customers who value sustainability and are willing to pay for it [24,54].

Although there are various studies in retailing and supply chain management, there is a limited amount of research on how retailers may influence and promote sustainability throughout the retail supply chain. By adopting an omnichannel strategy, the retailing industry can contribute to sustainable consumption and production through fewer physical stores, less distributed inventory, and, most importantly, by developing customer education and awareness regarding sustainability [27]. Moreover, transportation has also become increasingly crucial to the sustainability of logistics and supply chain management. Previous studies have found out that shopping in-store causes more CO_2 emissions than click and collect [23]. Researchers define the current state of freight transportation as not sufficiently optimized and characterized by economic, social, and environmental inefficiency and unsustainability [55]. Omnichannel may help reducing the frequency of empty trips, increasing average truck fill-rate and reducing greenhouse gas emissions, since transportation in developed countries is responsible for nearly 15% of such emis-

sions [55]. As such, omnichannel contributes with lower carbon footprint with easier access to product information and more delivery options [27].

By adopting omnichannel strategies, the responsibility for improving sustainability is shared, beginning with the online shopper in consolidating their purchases, with the vendors and transport companies in consolidating as many orders as possible into a single delivery tour. There is great potential to reduce the emissions associated with shopping-related travel [56] with omnichannel. As such, in order to implement sustainable omnichannel retailing, sustainability initiatives should be integrated across all channels and all steps in consumers' paths to purchase [27].

In omnichannel implementations, the control and measurement of sustainability is a relevant concern. Omni-channels have allowed retailers to reach additional customers and increase their sales, which resulted in increasing material flows. Moreover, retailers offer generous return policies, which has triggered a growing number of returns that drives increases in logistics costs and in gas emissions, affecting sustainability [57]. High product return percentages may also negatively affect sustainability of the firm, and society at large, by generating waste and requiring high additional energy resources for transportation [58].

Omnichannel retailers ship parcels from distribution centers to stores, from distribution centers to homes, from stores to homes and from stores to stores, increasing fragmentation in distribution and decreasing parcel density [59]. Such fragmentation may also impact environmental performance. In order to avoid it, companies can adopt some initiatives related to smart logistics such as innovative vehicles, proximity stations or points, collaborative and co-operative urban logistics, optimization of transport management and routing, and innovations in public policies and infrastructures [58]. In addition, technology advances such as mobile applications, artificial intelligence, virtual reality, augmented reality, and biometrics [60] and alternative vehicles contribute to consumers' demand for convenience and flexibility (parcelcopters and drone pilots) and vehicle innovation for environmental benefits (electric vehicles, street scooters, and vehicles on natural gas or biogas) [61] can be used. Finally, pick-up points and lockers are alternative locations for home delivery, allowing a bundle of parcels to be delivered at one stop, instead of delivering parcels at several individual stops [59].

5.1. Theoretical Implications

This study is grounded on the Resource-based View theory (RBV), which states that organizational resources, capabilities, or assets vary across firms and they differentiate firms' performance and competitive advantage [62]. In order to achieve such advantage, organizations need to acquire and develop unique, valuable, and scarce resources, including capabilities, skills, technologies, and know-how [63]. In the retail sector, companies must adapt themselves in order to compete in the market, and their competitiveness will be more heavily based on the ability to provide a holistic consumer experience than on selling the right products [2]. We believe omnichannel adoption is a way of achieving a competitive advantage. However, as more companies implement this approach, companies are seeking different ways to call customers' attention. The implementation of omnichannel according to sustainability guidelines is a way a company has to differentiate itself from other competitors.

According to RBV, resources can be classified into tangible and intangible. Tangible resources are the ones that can be sold or bought in a market, which include financial and physical resources. Intangible resources do not have clear and visible boundaries [64]. Braganza et al. [65] classifies resources as financial, physical, human (managerial and technical skills), organizational, technological, and intangible (reputation, brand recognition, data-driven culture, and organizational learning). As could be concluded from this study, the omnichannel implementation comprises the use of resources of different types and their combination may allow the company to achieve a competitive advantage. The use of such a set of different resources poses a challenge to companies, especially in a world where the mobile revolution and the growth of social media have allowed consumers to

not only check on product ratings and promotions in real time, but to also share thoughts, opinions, pictures, and videos with contacts. On one hand, this has created unprecedented opportunities for retailers to extend their sales channels by employing consumers as brand advocates through engaging them in new product design and testing [45]. On the other hand, a company needs to explore and integrate different kinds of resources to achieve such benefits.

5.2. Managerial Implications

This paper offers some interesting insights for managers and entrepreneurs, who need to learn more about implementing an omnichannel approach. First, a set of lessons learned and critical success factors were identified for omnichannel implementation. Lessons learned related to sales, customer commitment, and the supply chain were presented and should be taken into account by companies that are willing to adopt omnichannel initiatives. In addition, this study identified some common changes during omnichannel implementation. Such changes were presented grouped in four distinct categories: systems, processes, technology, and management. This categorization may aid managers to plan the changing processes in their organizations. This study has also pointed out which technological resources can be used to support omnichannel adoption. Previous studies have shown that the main efforts while adopting omnichannel should be spent on making its usage easy and compatible with consumers' lives [66]. In this sense, the use of technological resources plays a fundamental role to achieve this objective. Finally, this study identified some contributions omnichannel has had to sustainability matters. We expect these contributions may not only guide managers in this process, but also motivate them to implement the omnichannel approach in their companies.

6. Conclusions

Due to a series of favorable factors, such as few barriers to e-commerce entry, growth of Brazil's online market meant that virtual channels were not underestimated. In this context, the omnichannel strategy emerged, which, in turn, encouraged tactical and operational actions that linked to supply chains, IT, and marketing. This study analyses cases of implementing omnichannel models in Brazilian retail companies, focusing on technological changes and identifying primary activities undertaken, lessons learned, and critical success factors. The study also assesses influences related to sustainability with adoption of this distribution model.

For nationally relevant, large-scale retailers, the omnichannel is an excellent opportunity to increase inventory turnover, spread expansion costs, and enhance geographic reach with delivery from physical stores. Industries and retailers are forced to achieve greater efficiency in the value chain, considering a tripod that comprises sustainability, profitability, and growth created through a culture and organizational structure that prioritize values, competencies, strategy, and innovation. Integration of offline and online businesses proved a cogent strategy for balancing these foundations, and thus the omnichannel is ideal because it reconciles these two aspects. Although offline profitability is superior to that of online, the growth and traffic rates of the latter are greater. Close attention should be paid to management of several channels, since conflicts are expected. When customers start retrieving products bought online in physical stores or when the client shows to a store employee prices, product availability, or different payment conditions online, the natural tendency is for those employees to view the company's online channel as an enemy. Companies that succeed with the omnichannel undertake an intense task of raising awareness among employees so that changes are perceived as a means of growth for the retailer's business and customers in the region, not as a threat to the store itself. Competition between channels is undeniable, but offline channels enhance relationships, convenience, security, and loyalty, and online channels offer great expansion in the range of products offered, which would be infeasible to have available in a single store. Along with such awareness, it is also necessary to redesign the meritocracy and variable remuneration of

the sales team to serve as fertile ground for omnichannel transformations. An example is mixing sales results, client satisfaction, and profitability intelligently for both online and offline channels by region.

Companies seeking this transformation should start by focusing on a single, large pillar that offers and delivers products in a more customized way to the customer. It is also necessary to have efficient order fulfilment that recognizes potential restrictions and involves the entire company. Thus, successful retailers make more sales, becoming profitable omnichannel companies. Companies must pay attention to performance indicators such that the most important ones relate to strategic directions to execute the omnichannel. Financial indicators are indispensable, indicating the percentage of online sales in comparison to the company's total sales. It is thus possible to reflect the increase in the representativeness of the business over time in comparison to sales made in physical stores. Indicators related to deadlines, deliveries according to what is demanded in requests for proposals, stipulated budget, online traffic conversion, percentage of sales made by mobile devices, level of service, and mode of delivery are also relevant.

Findings from this study inform companies of how to act in relation to large-scale projects, such as the one proposed. It is essential to plan the implementation well, analyzing the technical complexity, organizational structure, and effective availability of stakeholders for execution. Companies that want to go further in the omnichannel market will realize that there are many other ways to plan and resolve issues than simply assessing order management, including financing/taxation, promotion, channels, categories, and variety of inventory and space. There is also planning of price cycles, promotions, and discounts by category, and strategic plans for the supply chain regarding order fulfilment network projects. The problem is that these plans are commonly developed in isolation, without considering the manner in which those in one area affect success or failure of others; that which seem ideal for one department might mitigate success of the company as a whole.

The retail executives agreed that the sector has changed in recent years. The migration from the old operational model of demand to the new customer-centered environment demands a change in paradigm that implies new business strategies in addition to a holistic approach to meet the demands of customers who seek perfect experiences of omnichannel purchases. When searching for this great transformation in an organized way, a process that focuses on a single, great pillar is recommended, which involves offering and delivering products in a customer-customized way, integrating with good service and more efficient fulfilment of orders, and recognizing restrictions that might involve the company as a whole in the business project. Successful retailers achieve a majority of sales and become profitable omnichannel companies. Regarding sustainability, participants observed a reduction of CO_2 emissions in transportation and distribution activities for a variety of reasons.

The omni-channel environment has increased the complexity of the return process as customers can choose from multiple channels at the order, fulfilment and return stages [58]. Effective Returns Management is critical to the supply chain management and can assist firms to identify improvement opportunities and achieve competitive advantage [67]. Identifying and analyzing the contributions or drawbacks omnichannel adoption has to the Returns management process is of high interest and is left as future work. These potential benefits are aligned with the view of the closed-loop supply chain management, which is the design, control, and operation of a system to maximize value creation over the entire life cycle of a product with dynamic recovery of value from different types and volumes of returns over time [67,68]. Future studies should also explore the role privacy constraints have on the implementation of omnichannel. Since omnichannel includes integrating different channels, which usually comprise sharing customers' data, the impact privacy norms and concerns have on this process should be further investigated. Privacy and security are the utmost important factors that need to be understood in omnichannel environments [69], which corroborates the importance of such studies.

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References

1. Cottet, P.; Lichtlé, M.C.; Plichon, V. The role of value in services: A study in a retail environment. *J. Consum. Mark.* **2006**, *23*, 219–227. [CrossRef]
2. Von Briel, F. The future of omnichannel retail: A four-stage Delphi study. *Technol. Forecast. Soc. Chang.* **2018**, *132*, 217–229. [CrossRef]
3. Grewal, D.; Roggeveen, A.L.; Nordfält, J. The Future of Retailing. *J. Retail.* **2017**, *93*, 1–6. [CrossRef]
4. Zhang, J.; Farris, P.W.; Irvin, J.W.; Kushwaha, T.; Steenburgh, T.J.; Weitz, B.A. Crafting integrated multichannel retailing strategies. *J. Interact. Mark.* **2010**, *24*, 168–180. [CrossRef]
5. Li, Y.; Liu, H.; Lim, E.T.K.; Mein, J.; Yang, F.; Lee, M.K.O. Customer's reaction to cross-channel integration in omnichannel retailing: The mediating roles of retailer uncertainty, identity attractiveness, and switching costs. *Decis. Support Syst.* **2017**, *109*, 50–60. [CrossRef]
6. Gao, F.; Su, X. Omnichannel Retail Operations with Buy-Online-and-Pick-in-store. *Manag. Sci.* **2017**, *63*, 2478–2492. [CrossRef]
7. Yrjölä, M.; Spence, M.T.; Saarijärvi, H. Omni-channel retailing: Propositions, examples and solutions. *Int. Rev. Retail. Distrib. Consum. Res.* **2018**, *28*, 259–276. [CrossRef]
8. Tuttle, B. Why Retailers Prefer "Ship to Store" over Plain Old Shipping to the Customer's Home. *Time*. 11 March 2011. Available online: https://business.time.com/2011/03/11/why-retailers-prefer-ship-to-store-over-plain-old-shipping-to-the-customers-home/ (accessed on 9 January 2021).
9. Mattar, F.N. *Administração de Varejo*; Elsevier: Rio de Janeiro, Brazil, 2011.
10. Lim, S.F.W.T.; Srai, J.S. Examining the anatomy of last-mile distribution in e-commerce omnichannel retailing. *Int. J. Oper. Prod. Manag.* **2018**. [CrossRef]
11. Ailawadi, K.L.; Farris, P.W. Managing Multi- and Omni-Channel Distribution: Metrics and Research Directions. *J. Retail.* **2017**, *93*, 120–135. [CrossRef]
12. Rodríguez-torrico, P.; Cabezudo, R.S.J.; San-martín, S. Tell me what they are like and I will tell you where they buy. An analysis of omnichannel consumer behavior. *Comput. Hum. Behav.* **2017**, *68*, 465–471. [CrossRef]
13. Rai, H.B.; Verlinde, S.; Macharis, C. The "next day, free delivery" myth unravelled: Possibilities for sustainable last mile transport in an omnichannel environment. *Int. J. Retail Distrib. Manag.* **2019**, *47*, 39–54. [CrossRef]
14. Lee, Z.W.Y.; Chan, T.K.H.; Chong, A.Y.L.; Thadani, D.R. Customer engagement through omnichannel retailing: The effects of channel integration quality. *Ind. Mark. Manag.* **2019**, *77*, 90–101. [CrossRef]
15. Cheah, J.H.; Lim, X.J.; Ting, H.; Liu, Y.; Quach, S. Are privacy concerns still relevant? Revisiting consumer behaviour in omnichannel retailing. *J. Retail. Consum. Serv.* **2020**, 102242. [CrossRef]
16. Muñoz-Villamizar, A.; Velázquez-Martínez, J.C.; Haro, P.; Ferrer, A.; Mariño, R. The environmental impact of fast shipping ecommerce in inbound logistics operations: A case study in Mexico. *J. Clean. Prod.* **2021**, *283*, 125400. [CrossRef]
17. Wang, Z.; Wang, Q.; Zhang, S.; Zhao, X. Effects of customer and cost drivers on green supply chain management practices and environmental performance. *J. Clean. Prod.* **2018**, *189*, 673–682. [CrossRef]
18. Huang, X.X.; Hu, Z.P.; Liu, C.S.; Yu, D.J.; Yu, L.F. The relationships between regulatory and customer pressure, green organizational responses, and green innovation performance. *J. Clean. Prod.* **2016**, *112*, 3423–3433. [CrossRef]
19. Chen, J.; Liu, L. Customer participation, and green product innovation in SMEs: The mediating role of opportunity recognition and exploitation. *J. Bus. Res.* **2020**, *119*, 151–162. [CrossRef]
20. Yenipazarli, A. Incentives for environmental research and development: Consumer preferences, competitive pressure and emissions taxation. *Eur. J. Oper. Res.* **2019**, *276*, 757–769. [CrossRef]

21. Tavasszy, L.A. Predicting the effects of logistics innovations on freight systems: Directions for research. *Transp. Policy* **2020**, *86*, A1–A6. [CrossRef]
22. Belisari, S.; Binci, D.; Appolloni, A. E-procurement adoption: A case study about the role of two Italian advisory services. *Sustainability* **2020**, *12*, 7476. [CrossRef]
23. Giuffrida, M.; Mangiaracina, R.; Miragliotta, G.; Perotti, S.; Tumino, A. Modelling the environmental impact of omni-channel purchasing in the apparel industry: The role of logistics. *Int. J. Logist. Syst. Manag.* **2019**, *34*, 431–456. [CrossRef]
24. Vadakkepatt, G.G.; Winterich, K.P.; Mittal, V.; Zinn, W.; Beitelspacher, L.; Aloysius, J.; Ginger, J.; Reilman, J. Sustainable Retailing. *J. Retail.* **2020**. [CrossRef]
25. van der Heijden, A.; Cramer, J.M. Change agents and sustainable supply chain collaboration: A longitudinal study in the Dutch pig farming sector from a sensemaking perspective. *J. Clean. Prod.* **2017**, *166*, 967–987. [CrossRef]
26. D'Eusanio, M.; Zamagni, A.; Petti, L. Social sustainability and supply chain management: Methods and tools. *J. Clean. Prod.* **2019**, *235*, 178–189. [CrossRef]
27. Adivar, B.; Hüseyinoğlu, I.Ö.Y.; Christopher, M. A quantitative performance management framework for assessing omnichannel retail supply chains. *J. Retail. Consum. Serv.* **2019**, *48*, 257–269. [CrossRef]
28. Du, S.; Wang, L.; Hu, L. Omnichannel management with consumer disappointment aversion. *Int. J. Prod. Econ.* **2019**, *215*, 84–101. [CrossRef]
29. Zhang, J.; Xu, Q.; He, Y. Omnichannel retail operations with consumer returns and order cancellation. *Transp. Res. Part E Logist. Transp. Rev.* **2018**, *118*, 308–324. [CrossRef]
30. Gupta, S. Why Retail Supply Chain Transformations Fail and How to Get it Right. *Logistics Management*. 2017. Available online: https://www.logisticsmgmt.com/article/why_retail_supply_chain_transformations_fail_and_how_to_get_it_right (accessed on 9 January 2021).
31. Bell, D.R.; Gallino, S.; Moreno, A. Offline Showrooms in Omnichannel Retail: Demand and Operational Benefits. *Manag. Sci.* **2018**, *64*, 1629–1651. [CrossRef]
32. Galipoglu, E.; Kotzab, H.; Teller, C.; Huseyinoglu, O.Y.; Poppelbu, J. Omni-channel retailing research—State of the art and intellectual foundation. *Int. J. Phys. Distrib. Logist.* **2018**, *48*, 365–390. [CrossRef]
33. Miotto, A.P.; Parente, J.G. Retail evolution model in emerging markets: Apparel store formats in Brazil. *Int. J. Retail Distrib. Manag.* **2015**, *43*, 242–260. [CrossRef]
34. Fastoso, F.; Whitelock, J. Why is so little marketing research on Latin America published in high quality journals and what can we do about it?: Lessons from a Delphi study of authors who have succeeded. *Int. Mark. Rev.* **2011**, *28*, 435–449. [CrossRef]
35. Saghiri, S.; Wilding, R.; Mena, C.; Bourlakis, M. Toward a three-dimensional framework for omni-channel. *J. Bus. Res.* **2017**, *77*, 53–67. [CrossRef]
36. Zhang, M.; Ren, C.; Wang, G.A.; He, Z. The impact of channel integration on consumer responses in omni-channel retailing: The mediating effect of consumer empowerment. *Electron. Commer. Res. Appl.* **2018**, *28*, 181–193. [CrossRef]
37. Simone, A.; Sabbadin, E. The New Paradigm of the Omnichannel Retailing: Key Drivers, New Challenges and Potential Outcomes Resulting from the Adoption of an Omnichannel Approach. *Int. J. Bus. Manag.* **2017**, *13*, 85. [CrossRef]
38. Juaneda-Ayensa, E.; Mosquera, A.; Murillo, Y.S. Omnichannel customer behavior: Key drivers of technology acceptance and use and their effects on purchase intention. *Front. Psychol.* **2016**, *7*, 1117. [CrossRef]
39. Verhoef, P.C.; Kannan, P.K.; Inman, J.J. From Multi-Channel Retailing to Omni-Channel Retailing. Introduction to the Special Issue on Multi-Channel Retailing. *J. Retail.* **2015**, *91*, 174–181. [CrossRef]
40. Alexander, B.; Cano, M.B. Futurising the Physical Store in the Omnichannel Retail Environment. In *Exploring Omnichannel Retailing*; Piotrowicz, W., Cuthbertson, R., Eds.; Springer: Cham, Switzerland, 2019.
41. Shi, S.; Wang, Y.; Chen, X.; Zhang, Q. Conceptualization of omnichannel customer experience and its impact on shopping intention: A mixed-method approach. *Int. J. Inf. Manag.* **2020**, *50*, 325–336. [CrossRef]
42. Wilding, R.D. Multi channel or omni channel? *Logistics & Transport Focus Magazine*. October 2013, p. 44. Available online: https://ciltuk.org.uk/Portals/0/Images/Focus%20Archive/Focus%202013/10%20Oct_2013.pdf?ver=2020-05-12-183117-843 (accessed on 25 November 2020).
43. Herhausen, D.; Binder, J.; Schoegel, M.; Herrmann, A. Integrating Bricks with Clicks: Retailer-Level and Channel-Level Outcomes of Online-Offline Channel Integration. *J. Retail.* **2015**, *91*, 309–325. [CrossRef]
44. Beck, N.; Rygl, D. Categorization of multiple channel retailing in Multi-, Cross-, and Omni-Channel Retailing for retailers and retailing. *J. Retail. Consum. Serv.* **2015**, *27*, 170–178. [CrossRef]
45. Chen, Y.; Cheung, C.M.K.; Tan, C. Omnichannel Business Research: Opportunities and Challenges. *Decis. Support Syst.* **2018**, *109*, 1–4. [CrossRef]
46. Thoma, C. The Omnichannel Shopper: Anytime, Anyplace, Anywhere. Available online: http://www.mytotalretail.com/article/the-omnichannel-shopper-anytime-anyplace-anywhere (accessed on 9 January 2021).
47. Hardgrave, B. Omnichannel retailing. *RFID J.* **2012**, *9*, 38.
48. Capgemini. *Are You Ready? How to Create an Always-On, Always-Open Shopping Experience. A View from Retail Leaders on the Industry Imperatives and Needed Standards*; Capgemini: Paris, France, 2014.
49. Brynjolfsson, E.; Hu, Y.J.; Rahman, M.S. Competing in the Age of Omnichannel Retailing. *MIT Sloan Manag. Rev.* **2015**, *1*, 23–29. [CrossRef]

50. Yin, R.K. *Case Study Research: Design and Methods*, 6th ed.; Sage Publications: Newbury Park, CA, USA, 2017.
51. Rosenthal, M. Qualitative research methods: Why, when, and how to conduct interviews and focus groups in pharmacy research. *Curr. Pharm. Teach. Learn.* **2016**, *8*, 509–516. [CrossRef]
52. Carey, M.A. *Focus Groups*, 2nd ed.; Elsevier: Amsterdam, The Netherlands, 2015; Volume 9, ISBN 9780080970868.
53. Sutton, S.G.; Arnold, V. Focus group methods: Using interactive and nominal groups to explore emerging technology-driven phenomena in accounting and information systems. *Int. J. Account. Inf. Syst.* **2013**, *14*, 81–88. [CrossRef]
54. Nduneseokwu, C.K.; Qu, Y.; Appolloni, A. Factors influencing consumers' intentions to participate in a formal e-waste collection system: A case study of Onitsha, Nigeria. *Sustainability* **2017**, *9*, 881. [CrossRef]
55. Lafkihi, M.; Pan, S.; Ballot, E. Freight transportation service procurement: A literature review and future research opportunities in omnichannel E-commerce. *Transp. Res. Part E Logist. Transp. Rev.* **2019**, *125*, 348–365. [CrossRef]
56. Jaller, M.; Pahwa, A. Evaluating the environmental impacts of online shopping: A behavioral and transportation approach. *Transp. Res. Part D Transp. Environ.* **2020**, *80*, 102223. [CrossRef]
57. Kembro, J.H.; Norrman, A.; Eriksson, E. Adapting warehouse operations and design to omni-channel logistics: A literature review and research agenda. *Int. J. Phys. Distrib. Logist. Manag.* **2018**, *48*, 890–912. [CrossRef]
58. Bijmolt, T.H.A.; Broekhuis, M.; de Leeuw, S.; Hirche, C.; Rooderkerk, R.P.; Sousa, R.; Zhu, S.X. Challenges at the marketing–operations interface in omni-channel retail environments. *J. Bus. Res.* **2021**, *122*, 864–874. [CrossRef]
59. Buldeo Rai, H.; Verlinde, S.; Macharis, C. City logistics in an omnichannel environment. The case of Brussels. *Case Stud. Transp. Policy* **2019**, *7*, 310–317. [CrossRef]
60. Ameen, N.; Tarhini, A.; Shah, M.H.; Nusair, K. A cross cultural study of gender differences in omnichannel retailing contexts. *J. Retail. Consum. Serv.* **2021**, *58*, 102265. [CrossRef]
61. Rai, H.B.; Verlinde, S.; Macharis, C. How Are Logistics Service Providers Adapting to Omnichannel retail? *IFAC PapersOnLine* **2018**, *51*, 588–593. [CrossRef]
62. Chae, B.; Yang, C.; Olson, D.L.; Sheu, C. The impact of advanced analytics and data accuracy on operational performance: A contingent resource based theory (RBT) perspective. *Decis. Support Syst.* **2014**, *59*, 119–126. [CrossRef]
63. Barney, J. Firm Resources and Sustained Competitive Advantage. *J. Manag.* **1991**, *17*, 99–120. [CrossRef]
64. Gupta, M.; George, J.F. Toward the development of a big data analytics capability. *Inf. Manag.* **2016**, *53*, 1049–1064. [CrossRef]
65. Braganza, A.; Brooks, L.; Nepelski, D.; Ali, M.; Moro, R. Resource management in big data initiatives: Processes and dynamic capabilities. *J. Bus. Res.* **2017**, *70*, 328–337. [CrossRef]
66. Silva, S.C.E.; Martins, C.C.; de Sousa, J.M. Omnichannel approach: Factors affecting consumer acceptance. *J. Mark. Channels* **2018**, *25*, 73–84. [CrossRef]
67. Barbosa, M.W.; de la Vicente, A.C.; Ladeira, M.B.; de Oliveira, M.P.V. Managing supply chain resources with Big Data Analytics: A systematic review. *Int. J. Logist. Res. Appl.* **2017**, *21*, 1–24. [CrossRef]
68. Govindan, K.; Soleimani, H.; Kannan, D. Reverse logistics and closed-loop supply chain: A comprehensive review to explore the future. *Eur. J. Oper. Res.* **2014**, *240*, 603–626. [CrossRef]
69. Dwivedi, Y.K.; Hughes, D.L.; Coombs, C.; Constantiou, I.; Duan, Y.; Edwards, J.S.; Gupta, B.; Lal, B.; Misra, S.; Prashant, P.; et al. Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *Int. J. Inf. Manag.* **2020**, *55*, 102211. [CrossRef]