

# Omnichannel retailing and post-pandemic recovery: building a research agenda

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## Abstract

**Purpose** – The study aims to propose a comprehensive overview of the Omnichannel phenomenon by identifying its theoretical foundations as well as future research directions.

**Design/methodology/approach** – In order to systematize Omnichannel-centered contributions and identify future research directions for post-Covid-19, this study adopted a mixed-method study, combining a systematic literature review, a bibliometric co-citation analysis and a panel discussion by field experts.

**Findings** – In Study 1, the authors traced extant literature on Omnichannel back to its theoretical foundations, which led to the identification of four research areas in which the concept of Omnichannel is rooted. Contributions pertaining to the aforesaid research areas were discussed and submitted to a panel of experts (Study 2) after the lockdown periods. The experts gave various insights into both the past and future of Omnichannel research. Finally, a framework synthesizing theoretical foundations of Omnichannel, literature gaps and opportunities for future research is provided.

**Originality/value** – To our knowledge, this is the first attempt to combine mixed methods study in Omnichannel research and to involve a panel of experts in order to discuss the findings of a literature review and evaluate future research directions. This choice allowed us to investigate both incumbent academic and managerial challenges raised by Omnichannel and to provide guidance for the post-pandemic recovery.

**Keywords** Omnichannel retailing, Mixed-method study, Literature review, Trends, Covid-19

**Paper type** Research paper

## 1. Introduction

In recent years, companies have been facing an increased complexity of the market environment, due to the continuous developments of digital technologies that have generated rapid changes in consumers' lifestyles and their relationships with brands and stores. Many companies have started developing Omnichannel strategies, a process that requires that they integrate and adapt their resources to face the emerging challenges such as maintaining



substantial consistency of brand values, attributes and overall image across the different services, experiences and channels provided (Payne *et al.*, 2017) and developing seamless experiences for their customers (Von Briel, 2018).

While before the pandemic Omnichannel was a differentiating factor, employed by companies in order to distinguish themselves from competitors by offering customers a wider range of services and experiences, the Covid-19 outbreak clearly increased its importance and potentiality (Verhoef, 2021).

The various social restrictions following the beginning of the pandemic, including the periods of lockdown, deeply affected the daily practices of companies and consumers alike (Farrell *et al.*, 2020). On many occasions, retailers were forced to close their offline channel and urgently resort to delivery services, rethinking their online offer in order to continue their activities despite the crisis (Wang *et al.*, 2020). At the same time, and out of necessity, many consumers were forced to change their behavior and habits, converting to online channels and touchpoints. Some customers experienced new services for the first time, giving rise to behavior that could be maintained after the pandemic (Arora *et al.*, 2020). At the same time, exposure to online touchpoints may have increased consumers' technology readiness, the use of mobile devices and the adoption of social media. All these factors are extensively investigated in literature as factors that have widely impacted customers' perception of Omnichannel retailing (Hickman *et al.*, 2020; Herhausen *et al.*, 2019; Pagani *et al.*, 2019).

Due to the need to integrate channels and develop Omnichannel strategies, companies today are facing the challenge of revising their operational, strategic and brand-related procedures in order to adapt to new circumstances (Picot-Coupey *et al.*, 2016; Chen *et al.*, 2018). Implementing channel integration and touchpoint alignment is, however, complex and risky (e.g. the subsequent emergence of channel cannibalization issues – Hansen and Sia, 2015).

From a theoretical point of view, as pointed out by Saghiri *et al.* (2017), Omnichannel is a complex concept with a very wide scope. This has led academic research to develop different streams of study that express different perspectives to analyze this phenomenon. However, such streams, ranging from management to consumer behavior, adopt different theoretical foundations, with different objectives, leaving scholars with a variety of contributions and the need for a comprehensive and consistent view of Omnichannel retailing. Considering such fragmentation, understanding the Omnichannel nature – based on academic literature – is, therefore, a primary aim of our research. We suggest that understanding this phenomenon through its mainstreams is necessary for redefining its boundaries and identifying present and future research directions necessary for post-pandemic recovery.

As a result, three research questions have been identified to guide our efforts:

- RQ1. What are the main streams of research with respect to the Omnichannel phenomenon?
- RQ2. What are the theoretical foundations of Omnichannel research?
- RQ3. What emerging opportunities for new research on post-Covid-19 Omnichannel can be identified?

To address these questions, we chose a mixed-method approach, combining a systematic literature review on Omnichannel conducted with bibliometric techniques (Study 1), and a panel discussion by field experts on the review results and emerging topics (Study 2) conducted after the recent lockdown periods. Study 1 identifies and compares the multiple research streams concerned with Omnichannel to uncover the intellectual foundations that each has employed to deal with the concept. Study 2 is the first, to our knowledge, to introduce a discussion with experts to validate and expand literature review findings and research directions concerning Omnichannel in the post-pandemic. The overall aim is to build a

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comprehensive framework to systematize the existing research streams in order to propose a research agenda for the future.

The paper has been developed as follows: in [Section 2](#), we propose a concise review of the diverse Omnichannel definitions, while in [Section 3](#), we explain the research design and methodology adopted. [Sections 4 and 5](#) are dedicated, respectively, to descriptive bibliometrics and co-citation clustering results. In [Section 6](#), we discuss the results of the experts' panel. Finally, a future research agenda based on both studies are provided.

## 2. Literature review

The Omnichannel concept follows the evolution in retailers' strategies and their transition from operating on a single channel to integrating multiple channels and touchpoints. The term "Omnichannel" itself reflects this progression, as it originated from its antecedents, "Multichannel" and "Cross-channel". As stated by [Galipoglu et al. \(2018\)](#), in literature, these terms are used as synonyms. For example, [Levy et al. \(2013, p. 67\)](#) describe Omnichannel retailing as "a coordinated multichannel offer that provides a seamless experience when using all the retailer's shopping channels." Some authors have suggested conceptualizations to better differentiate between these strategies. [Piotrowicz and Cuthbertson. \(2014, p. 6\)](#) point out that Omnichannel "is perceived as an evolution of Multichannel retailing," where the latter implies a "division between the physical and online store"; conversely, in Omnichannel "customers move freely among channels, all within a single transaction process." Following, [Beck and Rygl \(2015\)](#) propose a conceptualization that integrates both the retailer's and customer's perspectives through the adoption of two variables: the intensity of channel integration and the level of channel interaction. Omnichannel is identified as a situation where customers can trigger full interaction with the company or the brand through the adopted channels and the retailers have partial or full control over channel integration.

When identifying Omnichannel's key features, researchers have done so from the perspective of their specific field of interest. This emerges by comparing, for instance, the views expressed by [Juaneda-Ayensa et al. \(2016\)](#) and [Melacini et al. \(2018\)](#). While the former express that "*the dominant characteristic of the omnichannel retailing is that the strategy is centered on the customer and the customer's shopping experience [ . . . ]*" (p. 3), the latter state that "*OC [omnichannel] retailing is first and foremost a major logistics challenge because e-commerce differs from the traditional retail in many aspects*" (p. 392). [Lynch and Barnes \(2020, p. 2\)](#) suggest that "*omnichannel retailing is geared towards serving customers when and how they want,*" and this "*has consequences for operational retail strategy, since the approach digresses away from the more silo-like perspective multichannel retailing research.*" An even wider perspective on Omnichannel is proposed by [Saghiri et al. \(2017, p. 54\)](#), who try to define Omnichannel as a system involving not only consumers and retailers, but an entire supply chain as well: "*The idea of the omni-channel has been introduced, where a holistic view of all channels is provided to the consumer and supply chain members [ . . . ]*." Other authors include the brand as a crucial feature in Omnichannel: "*[Omnichannel is] the synergetic integration of customer touchpoints and communication opportunities for the purpose of creating a unified brand experience regardless of channel, platform or stage in the selling process*" ([Cummins et al., 2016, p. 5](#)). Recent contributions pair the concept of Omnichannel with Touchpoints, Customer Journey and Customer Experience. [Lemon and Verhoef \(2016\)](#) state that any Omnichannel strategy must necessarily consider the fact that the variety of channels used by customers leads to the need to manage and monitor a growing number of touchpoints of different natures and owned by different actors. As is well synthesized by [Huré et al. \(2017, p. 315\)](#), "*omni-channel could be referred to as the complete alignment of the different channels and touch points, resulting in [ . . . ] customer experience.*" This contributes dramatically to the final evaluation made by the customer, thus influencing the impulse to repeat the purchase,

and customer loyalty in the long term (Srivastava and Kaul, 2016). The above examples suggest the need to clarify the intellectual foundation of extant academic literature about Omnichannel, to connect relevant topics and theories and develop a research agenda. A comprehensive list of Omnichannel definitions from the early days to the most recent conceptual developments is contained in Appendix 1.

### 3. Research design and methodology

This work adopts a mixed-method research synthesis (MMRS) approach (Sandelowski et al., 2012) which allows researchers to exploit the benefits of both qualitative and quantitative methodologies, for a deeper and more robust understanding of complex phenomena, identifying critical aspects and eventual discrepancies to obtain “*more complete, concrete and nuanced answers [...] to complex research questions*” (Heyvaert et al., 2013, p. 671). In this study, MMRS helped provide a rigorous desk analysis combined with a discussion with field experts with notable academic and managerial backgrounds, a methodology that has been successfully adopted by previous studies in marketing and management (Hall, 2011; Pohlmann and Kaartemo, 2017; Mortazavi et al., 2021). Table 1 reports the steps undertaken in the two studies (methodology and results), which will be further discussed in the following paragraphs.

#### 3.1 Study 1: systematic literature review

The systematic literature review was conducted as follows: First, we identified a dataset of articles that represent the various fields of the academic debate on Omnichannel research. Then, we extracted the corresponding bibliographic metadata and applied quantitative techniques (bibliometric descriptive analyses), in order to set out the most relevant contributions and provide our qualitative interpretation (content analysis).

*3.1.1 Literature search.* The selection of the articles to be included in our literature review database was made according to the PRISMA diagram (Moher et al., 2009) to ensure effective reporting of sources. The data were retrieved from the electronic database ISI Web of Knowledge Core Collection (WoS). This source is considered “*the gold standard for citation analysis*” (Harzing and Alakangas, 2016, p. 791), as it provides standardized reference items and a rich set of

		Par.
Study 1: Systematic literature review	Methodology	
	• Selection and identification of papers	3.1.1
	• Bibliometric analyses (descriptive mapping and co-citation analysis)	3.1.2
	• Content-based analysis	3.1.3
	Results	
	• Bibliometric descriptive analyses	4
	• Co-citation analysis and content analysis on identified research clusters	5
Study 2: Discussion with field experts	Methodology	
	• Experts’ selection process; questionnaire design; data collection; data coding and qualitative analysis of results	3.2
	Results	
	• Experts’ perspectives on Omnichannel (validation of research clusters; need for theory development; research designs and settings; major challenges and needs for future research)	6

**Table 1.**  
Research design  
overview

metadata (Fetscherin and Heinrich, 2015) belonging to multiple disciplines (Merigó *et al.*, 2015). The search was conducted by title, subject and abstract terms. The keywords used included the word “Omnichannel” in its different forms, such as “Omnichannel” and “Omni-channel” (with delimiters), to allow us to identify a wider set of contributions. Only articles with an available abstract and written in English were considered, and the dataset was then filtered by the exclusion of grey literature, non-academic literature and conference proceedings. The dataset output from WebOfScience was fully hand-checked by a member of the research group, while two other researchers revised the work. During this process, we harmonized the spelling of “Omnichannel” and also accounted for other relevant spelling errors in names and/or journals.

The research was conducted on the entire timespan available in the WoS database – 1985–2020, up to the 20th of November 2020, when the data were extracted. At the end of the procedure, 314 articles had been identified, mainly pertaining to the WoS classification fields of “business,” “management” and “operations research management science,” and the corresponding bibliographic metadata were extracted and processed.

*3.1.2 Bibliometric analyses.* Bibliometric analyses were performed so that specific research fields could be identified and classified. The following three techniques were applied to the abovementioned 314 articles, with the purpose of identifying the most relevant contributions in the literature, to be subjected to a thorough qualitative analysis and interpretation:

- (1) *A descriptive mapping* of the collection of papers, using techniques based on the papers’ metadata including authors’ keywords, which required us to refine the database by harmonizing keywords’ spelling. We first identified the evolutionary process of Omnichannel literature through the scientific production year by year, and the most influential papers, journals and authors. According to Ferreira *et al.* (2016), developing a map of conceptual frameworks employed with reference to a certain topic allows a holistic view of the topic itself to be obtained, the understanding of its relationships with other key research subjects/areas to be enhanced, and attention to be focused on emerging research gaps.
- (2) *A co-citation analysis.* This is a statistical method that uses references as the main unit of measurement of affinity and proximity between papers to identify publications clusters that represent the intellectual foundations of a scientific discipline or school of thought (White and Griffith, 1981; Ramos-Rodriguez and Ruiz-Navarro, 2004; Galipoglu *et al.*, 2018). Huber *et al.* (2014) highlight that this method has proved particularly useful in the marketing literature. Co-citation analysis is based on the concept of “citation frequency,” a unit of measurement given by the total number of citations of a single document across all references in the sample (Garfield, 1979). Co-citation analysis calculates “citation frequency” by using pairs of papers to check whether both papers are cited in a third article (Aria and Cuccurullo, 2017). This process is then iterated for every paper in the sample. The analysis for this paper was conducted using a Louvain Clustering Algorithm that has been developed for group detection in very large networks (Blondel *et al.*, 2008) and has been successfully used for clustering procedures in bibliometrics. Moreover, being a non-hierarchical algorithm, it aids discovery of the total number of clusters without pre-assumptions (Traag *et al.*, 2019). Co-citation analysis also provides the betweenness centrality index for each paper of the different clusters. In information networks, betweenness centrality identifies which objects in the cluster represent “bridges” among other objects, namely, “nodes.” In bibliometrics, papers with a high centrality index conceptually link theories and research contributions (Abbasi *et al.*, 2012).

Analyses (1) and (2) were conducted with the support of “*bibliometrix*” bibliographic software, an R-based, validated tool for science mapping (Aria and Cuccurullo, 2017). This tool enables

analysis on three levels: “sources,” “authors” and “documents,” which correspond to the identification of “conceptual,” “intellectual” and “social” structures of scientific disciplines, respectively (Aria and Cuccurullo, 2017). While the “conceptual” structure refers to the relationships between theoretical concepts, identified by the words used (i.e. keywords, titles and abstracts), the “intellectual” structure expresses the relationship between papers (and theories); finally, the “social” structure refers to the identification of authors and research groups devoted to a certain field.

*3.1.3 Content-based analysis.* The co-citation analysis yielded the most-cited papers and identified research clusters. A *content-based analysis* (Seuring and Gold, 2012) was performed on such papers to map theoretical developments and research directions within each cluster. Topics were identified per cluster, providing a deeper understanding of the research fields involved and their interrelations, as will be shown in Section 5. Topics were identified by the researchers separately at first and then compared in order to increase the reliability of the research (Kolbe and Burnett, 1991).

### *3.2 Study 2: discussion with field experts*

Results from Study 1 were discussed with a panel of experts, with the aim of gathering valuable insights about the major issues, most important theories and methodologies for future research in the post-Covid Omnichannel domain. Omnichannel has in fact become increasingly relevant for both academics and practitioners, in relation to the multiple changes driven by the pandemic in channel management (Verhoef, 2021) and consumption behavior (Guthrie *et al.*, 2021).

The panel was selected to comprise academics with expertise in the Multi-, Cross- or Omnichannel topics worldwide. Data collection started in the post-lockdown period of April 2021 and was performed in two rounds by means of an online survey. For the first survey round, 17 potential participants were contacted; upon completion of the questionnaire, they were asked to suggest other experts' names. The second round involved 15 academics, for a total of 32 contacted experts. A total of 18 experts completed the survey, all of whom had past experience in Multi- or Omnichannel (2–10 years) and in retailing (11–20 years). They all work in different continents: Europe–Spain, Austria, UK, France, Belgium, Ireland, Switzerland and Finland are represented; two are located in Australia and New Zealand; one in the USA. Their studies involved both B2C and B2B, across retailing and consumer behavior. Five of them had published in academic journals almost exclusively, while the others had also written books and editorials for practitioners. Thirteen experts provide manufacturing and retail firms with their expertise regularly: eight had consulted on specific Multi-, Cross- or Omnichannel issues, such as channel integration, in-store customer experience, channel diversification and the development of e-commerce channels. They possess the necessary competencies to analyze bibliometric outputs from our research and discuss the theories and frameworks identified. Besides, because of their professional relations with retailers and practitioners, they are also able to understand their perspectives, needs and objectives.

The questionnaire was composed of six sections. In the first and second sections, the experts were asked to review a summary of the results that had emerged from Study 1, specifically on research clusters and Omnichannel theoretical underpinnings (e.g. *Tell us which of the four you think should receive more attention from researchers for better understanding the phenomenon of Omnichannel distribution*); also, they were asked to suggest which theories today could contribute the most to the field's development (*What are the main reasons why so little theory has been used in the context of omnichannel research? In your opinion, what theories would be useful in helping to understand and investigate the phenomena*

related to Omnichannel? Do you think that theories need to be developed for Omnichannel research – irrespective of which of the four clusters described above they pertain to?)

In the third and fourth sections, the experts commented on the most appropriate methodologies and on industries and settings that warranted further attention. In the fifth section, they suggested which topics and research areas academics should focus on (*What are the most important phenomena/themes/research questions that – from your point of view – need to be researched in the future? And why?*). Finally, in the sixth section, based on their experience with companies, they provided a list of Omnichannel issues that were most pressing from the practitioners' perspective in the post-pandemic period (*Based on your experience with companies across the supply chain, what Omnichannel issues “keep managers awake at night”? And which is the most pressing issue that needs solving from a practitioner's point of view?*).

Two members of the research group separately examined and coded the collected data, solved issues with a third researcher and discussed the results with the research group as a whole.

#### 4. Study 1 results: bibliometric descriptive analyses

It should first be noted that although the research was conducted on the entire timespan available in the WoS database – 1985–2020, the output has a timespan of January 2011–November 2020 (Table 2). A conspicuous increase in the number of publications was identified in the period from 2016 to 2020.

Starting from 2011 to 2020 sample, we proceeded to identify the “core” journals and authors, most dedicated to the subject, by applying, respectively, the science mapping rules of Bradford's Law (Brookes, 1969) and Lotka's Law (Pao, 1985). Bradford's Law arranges journals in descending order of the number of articles they have published on a subject, thereby identifying three “zones.” Journals in Zone 1 (Table 3) have published about 1/3 of all papers on the subject. The *International Journal of Retail and Distribution Management*, *International Journal of Physical Distribution and Logistics Management* and *Journal of Retailing and Consumer Services* stand out, as combined, they contribute 20% of all papers on this topic.

**Table 2.**  
Annual scientific  
production on  
Omnichannel  
(2011–2020)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
No. of articles	1	0	1	2	11	25	37	68	97	72

**Table 3.**  
Most influential  
journals publishing  
studies on  
Omnichannel  
(Bradford's law)

Source	Rank	Freq.	Cum. freq.	Zone
<i>International Journal of Retail and Distribution Management</i>	1	28	28	Zone 1
<i>International Journal of Physical Distribution and Logistics Management</i>	2	18	46	Zone 1
<i>Journal of Retailing and Consumer Services</i>	3	17	63	Zone 1
<i>Sustainability</i>	4	12	75	Zone 1
<i>Decision Support Systems</i>	5	10	85	Zone 1
<i>International Journal of Production Economics</i>	6	8	93	Zone 1
<i>International Review of Retail Distribution and Consumer Services</i>	7	7	107	Zone 1
<i>Electronic Commerce Research and Applications</i>	8	7	100	Zone 1
<i>Management Science</i>	9	7	114	Zone 1
<i>Journal of Interactive Marketing</i>	10	6	120	Zone 1

We then identified the authors with the highest number of published papers on Omnichannel (Table 4) by applying Lotka’s Law, which describes the frequency of publication by authors in a given field and distinguishes between “occasional” authors who have written only one article and “core” authors.

From this analysis, it emerged that about 86% of the authors had published only one paper on Omnichannel. In total, 119 authors had more than 1 paper, and the 12 most prolific (4, 5 or 6 papers) are identified in Table 5. The author that has contributed most to the field is Santiago Gallino (6 papers).

The most frequently cited papers were then identified. In Table 6, we show these 15 publications, alongside local citations (i.e. number of citations by other papers in the retrieved database) and global citation count (i.e. total number of citations received).

Finally, we examined the 314 papers to identify the most widespread research methodology and investigated settings. Of these, 82% feature one or more empirical studies and most studies employ quantitative methodologies (66%), mainly surveys and math’s models (the latter in logistics and operations studies). Qualitative methodologies are applied in 33% of the papers, mostly case studies and in-depth interviews and 1% apply a mixed-method research design.

Overall, 53% of the Omnichannel papers included a focus on a specific industry, namely, fashion, apparel and accessories, food and grocery, multi-category retailing and consumer electronics. Services, both public and private, appear almost unexplored – with the exception of banking – as well as B2B and wholesale commerce. Most of the studies – especially in the consumer behavior area – use industries as a mere setting. For example, fashion, apparel and accessories or consumer electronics are often used for investigating the Millennial consumer segment. Other papers do not explicitly refer to an industry, such as in the logistics domain, where mathematical models are developed based on a hypothetical company’s needs,

Documents written	No. of authors	Proportion of authors (%)
1	714	85.7
2	79	9.4
3	28	3.3
4	8	0.91
5	3	0.37
6	1	0.13
	833	100

**Table 4.**  
Authors and number of  
publications about  
Omnichannel  
(Lotka’s law)

No.	Author	No. of publications	H-index
1	Gallino, Santiago	6	21
2	Hubner, Alexander	5	16
3	Huseyinoglu, I.O.Y.	5	8
4	Moreno, Antonio	5	18
5	Li, Gang	4	19
6	Macharis, Cathy	4	41
7	Norrman, Andreas	4	20
8	Rai, Heleen Buldeo	4	8
9	Tayi, Giri Kumar	4	23
10	Verhoef, Peter C.	4	69
11	Verlinde, Sara	4	9
12	Wollenburg, Johannes	4	5

**Table 5.**  
Number of  
publications and  
H-index of the  
top 12 authors

**Table 6.**  
Most-cited papers by  
local and global  
citation impact

No.	Author, source, year	Local citations	Global citation count
1	Verhoef <i>et al.</i> (2015), <i>Journal of Retailing</i>	147	376
2	Brynjolfsson <i>et al.</i> (2013), <i>MIT Sloan Management Review</i>	107	195
3	Beck and Rygl (2015), <i>Journal of Retail and Consumer Services</i>	63	98
4	Bell <i>et al.</i> (2014), <i>MIT Sloan Management Review</i>	61	88
5	Rigby (2011), <i>Harvard Business Review</i>	53	134
6	Herhausen <i>et al.</i> (2015), <i>Journal of Retailing</i>	50	129
7	Gao and Su (2017a, b), <i>Management Science</i>	49	68
8	Hübner <i>et al.</i> (2016a), <i>International Journal of Physical Distribution and Logistics Management</i>	38	72
9	Hübner <i>et al.</i> (2016b), <i>International Journal of Retail and Distribution Management</i>	31	72
10	Ailawadi and Farris (2017), <i>Journal of Retailing</i>	30	63
11	Juaneda-Ayensa <i>et al.</i> (2016), <i>Frontiers in Psychology</i>	27	44
12	Ishfaq <i>et al.</i> (2016), <i>International Journal of Physical Distribution and Logistics Management</i>	25	54
13	Bell <i>et al.</i> (2018), <i>Management Science</i>	25	33
14	Picot-Coupey <i>et al.</i> (2016), <i>International Journal of Retail and Distribution Management</i>	24	35
15	Saghiri <i>et al.</i> (2017), <i>Journal of Business Research</i>	24	40

organization and assets. It must be noted that less than 1% of all the papers are multi-industry studies comparing behavior or strategies across sectors.

## 5. Study 1 results: co-citation analysis and content analysis on identified research clusters

In this section, we provide the result of the content analysis conducted on 50 papers, categorized into 4 research clusters, resulting from the co-citation analysis. Cluster 1 is centered on consumer behavior; Cluster 2 is labelled after the topics of strategy and management; Cluster 3 deals with Omnichannel from the perspective of channel management issues; and Cluster 4 is focused on channel integration. For each cluster, core papers were identified based on a high betweenness centrality index. Some of the clusters include papers focused on the development of research methods and procedures: following [Gurzki and Woisetschläger \(2017\)](#), it is reasonable not to consider such papers in the analysis, to improve the interpretation of the results. The details of each of the 50 papers – authors, publication year, title and source – are provided in [Appendix 2](#), as well as the network and density visualizations of the four clusters.

### 5.1 Cluster 1: consumer behavior

Cluster 1 comprises 18 papers concerned with a variety of topics within consumer behavior. It includes three literature reviews and has a mean year of publication of 2010. Contributions in this cluster span the 2005–2017 period and clearly show the multichannel origin of Omnichannel research. In fact, the word Omnichannel itself started being employed only in 2015; in the same year, papers ([Baxendale \*et al.\*, 2015](#); [Lemon and Verhoef, 2016](#)) use the word “touchpoints” for the first time. The paper from [Verhoef \*et al.\* \(2015\)](#), which proposes Omnichannel and touchpoints as the language of the “new paradigm,” is the main node of the cluster, with a centrality measure of 38.61.

Papers in this cluster reflect the need to make sense of the emerging phenomenon of consumers shopping across channels. Authors investigate multichannel shoppers’

characteristics, drivers and effects on channel and company sales, in the short and longer run (e.g. Kumar and Venkatesan, 2005; Konuş *et al.*, 2008). The need to assess the size and impact of the multichannel segment in the customer base and to develop effective multichannel management approaches such as customer relationship management emerges (Venkatesan *et al.*, 2007).

Earlier works are centered on the offline–online dichotomy, while later works explore a new scenario in which the customer’s purchase process becomes a dynamic journey across a wider range of channels and touchpoints. Consequently, effective management of the customer journey calls for an innovative approach, namely, customer experience management (Verhoef *et al.*, 2015; Lemon and Verhoef, 2016; Grewal *et al.*, 2017).

Another common trait of the papers in this cluster is the attention paid to the managerial consequences of the behavior investigated, such as channel migration and cannibalization. The “reasons why” and implications of these studies show an explicit managerial focus. For example, studies centered on customer segmentation are strongly related to the managerial need to understand – and eventually influence – different consumers’ choice drivers and behavior across channels (e.g. Verhoef *et al.*, 2007; Neslin and Shankar, 2009; Avery *et al.*, 2012; Pauwels and Neslin, 2015; Wang *et al.*, 2015).

As far as theories are concerned, in Cluster 1, various established consumer behavior theories are employed to explain the specific multichannel behavior that each paper addresses, e.g. theory of reasoned action, in Verhoef *et al.* (2007); utility-based models, in Gensler *et al.* (2012), Konuş *et al.* (2008) and Melis *et al.* (2015); social exchange theory, in Venkatesan *et al.* (2007). With their works, Lemon and Verhoef (2016) and Baxendale *et al.* (2015) mark a moment of disruption. Rather than a new theory, these authors propose their novel approach based on touchpoints, which will represent the basis for many future studies.

### 5.2 Cluster 2: strategic management

Cluster 2 is concerned with management issues. It is composed of nine papers and has a mean year of publication of 2014. Papers in Cluster 2 question how to compete effectively in the new environment by combining channels, as is well described by Brynjolfsson *et al.* (2013), which is the main node of the cluster (centrality 15.78).

Channels are considered to be information and product fulfilment combinations (Bell *et al.*, 2014) that allow for the identification of different Omnichannel solutions such as Buy-Online-Pickup-In-Store or “click-and-collect” (Gallino and Moreno, 2014; Gao and Su, 2017a) and showrooming (Rapp *et al.*, 2015; Gao and Su, 2017b; Bell *et al.*, 2018). The companies investigated in these studies face the transition from managing a dichotomous configuration (online–offline) to multiple combinations of channels and touchpoints. Differently from Cluster 1, here, the evaluation of the impact of such solutions is not constrained to channel or company sales but focuses on their effect on competitive advantage. It is within this strand, for example, that Ofek *et al.* (2011) address channel profitability, and Rapp *et al.* (2015) study the strategic role of salespeople as they deal with showrooming behavior.

### 5.3 Cluster 3: channel management issues

Cluster 3 is named channel management issues and includes 14 papers, 4 of which are literature reviews. The mean year of publication for this cluster is 2015. Papers in this cluster are concerned with channel management issues on two levels: on the one hand, there are works that address specific operational issues related to the company’s adoption of a new channel, such as inventory planning (Hübner *et al.*, 2016a), last-mile distribution (Bernon *et al.*, 2016) and back-end fulfilment (Ishfaq *et al.*, 2016); on the other, we find papers that aim to show the consequences of such adoption on a higher level – notably, the impact on the entire organization of the retail firm of the choice to go multi- or omni-channel and the subsequent need to reorganize and integrate

processes and flows. Cao's work (2014), by showing that cross-channel provides more value but requires changes across several aspects of the retail business model – retail concept, flow management, HR organization and management and relationship management – is an example of the latter. Cao's holistic vision will be highly influential for many authors in the coming years.

Earlier works focus on the specific issue of adding a second channel in companies that have long been single-channel (online-to-offline and vice versa), while later papers try to address the greater complexity that has arisen since the onset of Omnichannel. The work of Beck and Rygl (2015) acknowledges such complexity by proposing a taxonomy of the various channel management situations that companies need to address. Ailawadi and Farris (2017) propose new metrics for gauging the performance of the new multi- and omni-realities.

It is worth noting that the majority of works in this cluster adopt an interpretivist approach by means of qualitative methodologies, such as Delphi studies, and single or multiple case studies. For example, Piotrowicz and Cuthbertson (2014), the central paper of the cluster (centrality 10.84) gather practitioners' opinions through focus groups, and the abovementioned 2014 work of Cao is based on a thorough construction of the case study of a Chinese Omnichannel retailer.

#### *5.4 Cluster 4: channel integration*

Finally, Cluster 4 is centered on channel integration, from the consumer perspective (channel integration perception) and from the management perspective (channel integration execution). It includes nine papers and has a mean year of publication of 2011. Studies in this cluster explore the impact of channel integration on key company outcomes, such as customer retention (Bendoly *et al.*, 2005) and satisfaction (Herhausen *et al.*, 2015), and highlight the central role of consumer perception of such integration. Several consumer behavior theories are invoked to explain how perceptions of integration are formed, e.g. Mental Accounting Theory, in Bendoly *et al.* (2005), the Unified Theory of Acceptance and Use of Technology, in Juaneda-Ayensa *et al.* (2016) and Technology Diffusion Theory (Herhausen *et al.*, 2015). As far as integration execution is concerned, studies rely on resource-based view approaches (Cao and Li, 2015; Oh *et al.*, 2012). This cluster stresses the role of information technology in both Omnichannel perception (Juaneda-Ayensa *et al.*, 2016) and execution (Saghiri *et al.*, 2017). In sum, works in this cluster suggest that the journey to Omnichannel requires integration on two sides simultaneously: back-end operations and front-end perceptions.

## **6. Study 2 results: the experts' perspective on omnichannel in the post-Covid-19**

This section presents the key findings emerging from Study 2. Eighteen experts who took part in the study were asked to discuss various aspects of Omnichannel, also considering the developments emerged during the pandemic period. As Seetharaman (2020) points out, the pandemic has represented an opportunity – though forced – for companies to develop new business models by integrating or abandoning channels or touchpoints, with the possibility of maintaining such changes in the long term. The Omnichannel transition has thus become even more strategic, due to consumers increasingly relying on the online and mobile channels during their journeys and being demanding of seamless experiences (Soto-Acosta, 2020). The results will be displayed according to the topics addressed in the questionnaire: validation of the Omnichannel research clusters; theories and theory development on Omnichannel; research designs and settings for future studies; and major challenges and needs of Omnichannel research.

### *6.1 Validation of Omnichannel research clusters*

The experts were presented with the research clusters that emerged from Study 1, which represent Omnichannel's theoretical foundations – Consumer Behavior, Strategic Management, Channel Management Issues and Channel Integration – and were asked to

choose which of them should receive priority in the post-pandemic society as an area for future research.

Interestingly, 11 experts chose Channel Integration, as it is the key to seamlessness. It is considered a “*basis for superior customer value*” and “*to create long-term sustainable business models*”. Channel Integration embodies the “*holistic perspective to Omnichannel marketing*” and it can be the key to integrating the four research areas: “*understanding Omnichannel demands seamless, highly integrated approaches*” [...] “*academic and practitioner knowledge needs to consider an integrated and holistic approach to the topic.*”

Consumer Behavior in Omnichannel environments is considered a “*basis for strategy development and/or redesign,*” and it is noted that “*companies have only a limited understanding of complex customer journeys.*” The experts also suggested that Omnichannel is an interesting setting in which to investigate recent consumer behavior disruptions: “*we need to understand what is changed with the pandemic, especially for the young segment.*”

As for Strategic Management, the experts suggested that “*understanding companies’ issues is crucial to provide effective managerial implications,*” and that a stronger understanding of companies’ perspective also has implications for academic research: “*understand how management conceptualize the undergoing changes, in order to propose valid theoretical frameworks.*” Overall, the comments on the Channel Integration, Consumer Behavior and Strategic Management areas are in line with what emerged from the analysis of theoretical foundations (Study 1, sections 5.1 and 5.2). Finally, very little attention has been devoted to Channel Management Issues.

## 6.2 Need for theory development in Omnichannel

The experts provided several explanations for the fact that, in the Omnichannel domain, theories are scarcely used, thus confirming our findings (Study 1, Section 5). Specifically:

- (1) *Recency of the Omnichannel phenomenon*, originated by rapid and disruptive changes in marketspaces that contribute to quick obsolescence of frameworks.
- (2) *Interdisciplinarity of Omnichannel*, which requires interconnection among different disciplines (i.e. HR, information management, business informatics and data analytics), some of which “*marketing scholars are not familiar with.*”
- (3) *Practitioner orientation of Omnichannel*. Since retailing is mostly practitioner-oriented, Omnichannel research is perceived as “*very descriptive and operational in nature.*”
- (4) *Omnichannel as a mere setting*: A few experts suggested that Omnichannel may be a mere condition triggering certain behavior on the consumer side.
- (5) *Research design and data collection issues due to Omnichannel complexity*. Researchers may face issues in investigating more than two channels at once and in measuring their integration. Also, it may be difficult to obtain Omnichannel data, quantitative or qualitative, from companies.

Omnichannel does not need new theories, according to six experts. Existing theories are perfectly fit, on the company side (e.g. resource-based view, transaction cost theory and principal-agent theory) as well as on the consumers’ (e.g. technology acceptance model, goal theory, information processing theories and congruence theory).

Among the 12 experts who believed that specific theories should be developed for Omnichannel, 5 suggested that these theories should emerge from each of the research areas in which Omnichannel is rooted; the others, instead, called for a general theory of

Omnichannel that would consider the interactions among all the systems and actors involved. For example, one suggested that holistic research approaches be adopted “*to provide an exploratory and inductive understanding of the complexities of ‘Omni’.*”

The absence of a consensus on whether Omnichannel needs theories of its own confirms the multiple perspectives that could be adopted to address this topic.

### *6.3 Designs and settings for Omnichannel research*

The experts were presented with findings from Study 1 referring to the adoption of methodologies in the Omnichannel domain (par 4.) and asked to offer suggestions of methodologies for future studies. Almost all the experts suggested that qualitative methodologies are preferable for exploring Omnichannel phenomena, given their novelty; mixed methods were recommended, too. Among the quantitative methodologies, the researchers suggested field experiments and big data analytics.

As regards the research settings, the experts suggested that the following industries should be considered for future Omnichannel research: home furniture, luxury, automotive and personal care. Among services, health services, hospitality and tourism, construction and education were mentioned. The experts also proposed that B2B and C2C relations be analyzed, the latter “*since consumers are engaging in Omnichannel selling and purchasing of second-hand goods from each other.*” A few experts suggested that more interesting than an industry focus was a retail business model perspective: “*Most research has a focus on brick-and-mortar retailers, while pure players transitioning to omnichannel models are of specific interest and scarcely studied.*”

### *6.4 Major challenges and need for Omnichannel research*

The experts were asked to cite the most promising directions for future academic research and crucial Omnichannel issues for practitioners, especially considering the post-Covid period and the changes it has elicited. Their suggestions can be arranged under five themes:

*6.4.1 Evolution of the customer journey.* In Omnichannel contexts, researchers’ attention today should be devoted to understanding the customer journey. Research should include the design and redesign of journeys through the selection and management of touchpoints. The pandemic – and its consequent restrictions – have proven how circumstances can alter customer journeys, even preventing customers from accessing certain touchpoints or channels and forcing them to explore new alternatives. Also, as most customer journeys are complex and extended, they may include different actors than the retailer, and steps such as complaints and returns: “*this process [ . . . ] from attitude formation to after-sales behavior starts months before an actual purchase and has not really been investigated.*” Studying the customer journey is regarded as well-suited for the integration of competencies from different research areas, involving consumer behavior, operations, and logistics.

*6.4.2 Channel-related consumer behavior and experience.* It is crucial for companies to understand how Omnichannel influences consumers, in order to effectively manage the experience it offers. In this context, sub-topics of interest are customer loyalty and engagement, Omnichannel service quality and Omnichannel brand management. The pandemic, has, in fact, further exacerbated free-riding behavior across channels, such as webrooming and the quest for convenient prices. The experts suggested further research on pure digital players, to understand how they address customers’ needs, which in turn questions the role of physical stores. They suggested the question of “*what contexts (products, markets, geographic and cultural contexts) enable or constrain good and bad consumer experiences in an omni-world.*” Studies addressing the consumer experience with Omnichannel might try to answer the question: do consumers really need Omnichannel? Or, conversely, does becoming Omnichannel for a company necessarily affect consumer perceptions positively?

**6.4.3 Omnichannel strategy implementation.** Omnichannel companies are facing the challenge of implementing efficient and effective information systems that are crucial for internal and external data management. It is a huge and risky investment. Information systems are intertwined with last-mile logistics and delivery issues; the experts highlighted the extreme complexity of managing operational activities, especially in the post-pandemic period, and the need to implement customer satisfaction measurement and to reach a high level of personalization in the delivery service. Today service recovery issues have also become strategic. They should be considered from both the logistic efficiency and the customer experience perspectives, since returns and/or delivery failures can disorient consumers and activate entirely different journeys. Related to the above issues is the emerging need to have constant control over the Omnichannel performance. Specifically, companies should develop metrics dedicated to measuring each channel's contribution to performance and thus reconsider operations internal and external costs. Assessing the economic viability of Omnichannel may bring about the possibility of some companies finding it non-viable or unprofitable. The experts pointed to the challenges of increased competition and related price pressure, which were further reinforced in this post-Covid period. They described Omnichannel as "*a high-transparency context*," in which it is difficult to make a profit when prices are being driven down; also, competing in such a context requires "*huge marketing and management costs for the company's digital presence*." Finally, the experts suggested attention should be paid to the role of channel partners, and the trade-offs Omnichannel companies must face when deciding whether to outsource or internalize processes.

**6.4.4 Human resources management.** The experts consider the increasing relevance of Omnichannel as an opportunity for an organizational renewal of companies, in a continuous effort to "*innovate while maintaining the core business*." First, Omnichannel today calls for the definition of new roles for HR. HR contributes to the customer experience and is crucial for service quality perception: new skills are required, and companies must hire accordingly or train personnel specifically to accomplish those goals. Second, managing HR in an Omnichannel context also means companies must "*balance staff across physical and digital channels, optimizing staff deployment*." The experts also posed the question of which organizational cultures and leadership techniques might be more effective in coordinating and motivating HR to have a positive impact on "omni-success."

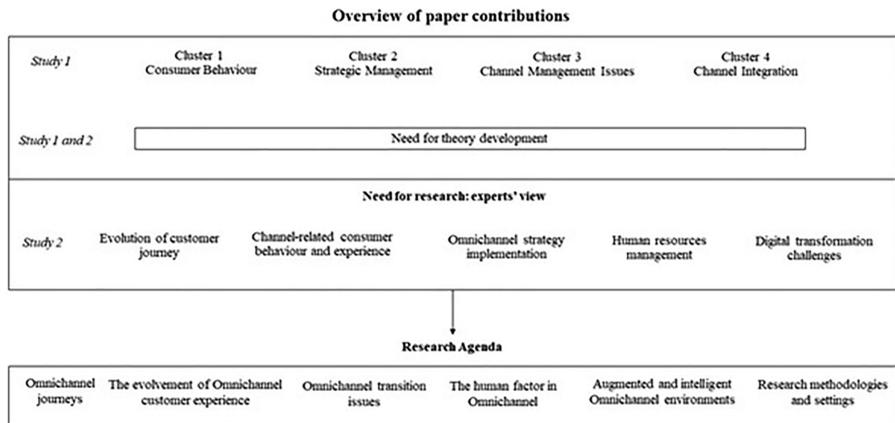
**6.4.5 Digital transformation challenges.** The experts suggested that, while studying the Omnichannel phenomenon in the post-pandemic period, it would also be strategic to address issues related to the adopting of new technology.

On the one hand, researchers and practitioners need to understand the opportunities and threats of Artificial Intelligence, Augmented and Virtual Reality, Marketing Automation software and the use of drones in logistics and delivery services. On the other, it is necessary to find a balance between physical assets and digitalization, as a basis for implementing the "Phygital" business model. The experts also mentioned that they were considering critical privacy and legal issues related to technology developments, the possibility of exploiting big data for management and marketing purposes, and the increasing role of data science in retailing.

## **7. Discussions of results and stimuli for Omnichannel research**

This study aimed to shed light on the current status of Omnichannel research and its foundations by uncovering the most promising issues for future research in this area. Based on the co-citation and content-based analysis (Study 1) and on the survey of a panel of experts (Study 2), several insights emerge (Figure 1).

**Figure 1.**  
Insights and  
implications for  
Omnichannel research



With reference to [RQ1](#), Omnichannel is found to be a complex phenomenon that is rooted in four key areas: Consumer Behavior; Strategy and Management; Channel Management; Channel Integration. This highlights the variety of contributions and intellectual foundations that emerge around Omnichannel, while also underlining how the different research perspectives of Omnichannel studies are interconnected. There is no widely accepted definition of Omnichannel, and many studies are still focused on the difference between multichannel and cross-channel, which emerged as antecedents of Omnichannel, the latter representing a further phase within an evolutionary process related to technological advancements. Channel Integration appears to be the most promising area for future research in the Omnichannel domain. In fact, channel integration is a necessary requirement for developing Omnichannel systems that are capable of offering seamless services and experiences for consumers. Studying the role of Channel Integration connects both the consumer and company perspectives.

As far as [RQ2](#) is concerned, theoretical developments in the Omnichannel domain are found to be rather scarce. No theory has been developed specifically for Omnichannel and the theories employed are usually existing ones adapted to the specific phenomenon under study. This opens a debate on whether Omnichannel should merely be considered a new setting that calls for new testing of existing theories or a new domain that deserves specific theoretical developments. Experts are divided on this. Those who deem new theories necessarily think that new theories rooted in the different intellectual foundations of Omnichannel are more likely to emerge than a comprehensive general theory of Omnichannel.

Finally, from the analysis of papers in the Omnichannel domain and from the knowledge shared by the interviewed experts, we can develop a research agenda based on the five pillars identified ([RQ3](#)), in this post-Covid-19 phase which can guide practitioners and academic researchers. For each pillar, we have identified relevant research questions that are listed and briefly discussed below.

*Omnichannel journeys*: with the role of the physical store shifting from point of sale to point of experience, and with the emergence of new online sales channels such as livestream shopping and conversational commerce applications, it will be challenging for companies to understand today how to keep their brand identity and values when integrating all the different channels so as to offer a seamless but authentic experience. Specifically, designing Omnichannel journeys might require companies to develop ongoing interactions and coordination with a substantial number of channel partners and service providers. How can companies manage such a complex network of relationships

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and/or control these partners'/providers' actions? What are the consequences when "the price companies must pay" to be Omnichannel is to relinquish control to the hands of more powerful players (e.g. platforms)?

Given such complexity, on the one hand, it would be of primary importance to understand whether a high degree of channel integration implemented so as to deliver an Omnichannel experience is in fact beneficial for all companies. On the other, further studies should investigate whether the effects of channel integration might vary across different types of customer journeys (long versus short journeys, journeys with service failures) and across subgroups of customers (e.g. generational cohorts, brand detractors vs. brand lovers, deal-prone consumers and different cultural subgroups).

*The evolution of the Omnichannel customer experience:* there is a need to explore the longitudinal dimensions of the customer experience, to appropriately investigate the role of time in touchpoint exposure. For example, do Omnichannel customers display Omnichannel behavior in every situation? Is there an Omnichannel "fatigue" to such an extent that Omnichannel behavior can be abandoned? Are some consumer segments more likely to adopt (or abandon) Omnichannel behavior (e.g. deal-prone consumers) than others? Do friends or relatives acting as shopping companions influence the experience with touchpoints? These are relevant questions for understanding how to achieve customer engagement and customer loyalty in Omnichannel.

*Omnichannel transition issues:* it has become important to understand whether the transition from single channel to Omnichannel is a gradual process that entails going through a multi-channel phase or instead if a direct leap is preferable, and from what perspectives. Are barriers and obstacles to the Omnichannel transition specific or common to bricks-and-mortar retailers and online pure players? Does it pay off in the long term to become Omnichannel? How can Omnichannel success be measured with reference to the short versus long term? Moreover, Omnichannel is not simply a matter of introducing (or not) certain services such as BOPS: it is rather a problem of defining appropriate thresholds in the delivery of these services. What should guide the setting of such thresholds? Besides, Omnichannel is also a matter of the brand transitioning to digital. How can companies accomplish this while preserving the brand identity? How might the alignment between brand identity and brand image in the Omnichannel environment be measured? Companies should understand when it is beneficial and when detrimental to involve channel partners and service providers in the deployment of the Omnichannel transition. If channel partners are to manage several phases of the customer journey, how can companies display a consistent brand image from the pre-purchase to the after-sale stage?

*The human factor in Omnichannel:* both employees and consumers need to be trained to navigate the Omnichannel experience. Salespeople and customer service representatives are important human touchpoints that can be leveraged to educate consumers and point them towards taking the company-designed seamless journey. What training and what incentives are most effective in the Omnichannel employee-customer interaction? The human components will be key to enriching the value and the social dimension of the experience that the customer is living within a certain channel in order to prevent competitive showrooming or webrooming: is this so in any channel and setting? As far as customer education about Omnichannel is concerned, the role of content marketing and personalization could be further explored.

*Augmented and intelligent Omnichannel environments:* the disruption brought by emerging technologies and their increased use by consumers is attracting attention to how Artificial Intelligence and Augmented and Virtual Reality will change the customer journey and the environment in which it takes place. Focusing on the Omnichannel environment requires the adoption of a holistic approach, which takes into account the implementation of new technologies by companies and their adoption by consumers. Special attention should be

devoted to identifying the dark side of applying new technologies that have the potential to negatively influence consumer privacy and security.

*Research methodologies and settings:* exploring the abovementioned research directions might require the adoption of new approaches and methodologies. The novelty of Omnichannel environments calls for rigorous qualitative methodologies with which to explore the emerging issues and to be combined with quantitative methodologies in mixed-method designs. Employing field experiments or big data analysis is also suggested so that we can better understand how customer purchase behavior and customer engagement are influenced by Omnichannel. As far as the settings are concerned, many industries are still unexplored, especially B2B contexts and services such as health, hospitality and tourism and education.

Omnichannel has been found to be a growing and promising field of research. This paper has attempted to summarize the research directions and gaps and to foster relevant, far-reaching research.

The major limitation of our study concerns the methodology used in the selection of the literature to be reviewed. In order to focus on the Omnichannel phenomenon, we only selected papers explicitly referring to it; as recently observed, Omnichannel is strongly related to other concepts such as “customer journey,” “channel integration,” “customer experience,” etc. It might, therefore, offer an opportunity to trace back to how studies dedicated to such topics can contribute to the Omnichannel domain. Nevertheless, this study opens various avenues of fruitful research in Omnichannel for practitioners and academics in the post-pandemic recovery.

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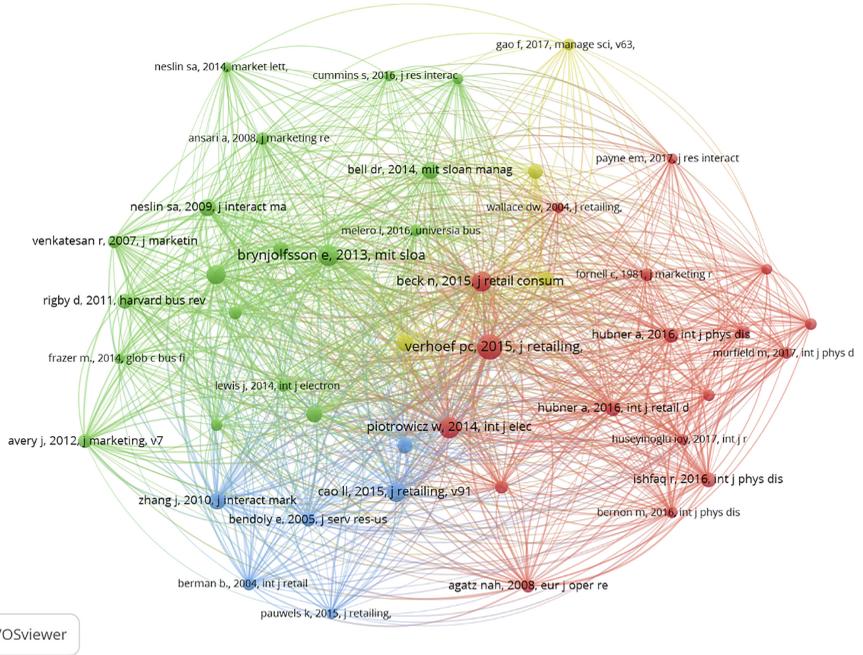
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Appendix 1

Authors	Definition
Rigby (2011, p. 4)	"Omnichannel retailing [is] an integrated sales experience that melts the advantages of physical stores with the information-rich experience of online shopping"
Brynjolfsson <i>et al.</i> (2013, p. 2)	"In the omnichannel retailing experience, the distinctions between physical and online will vanish, turning the world into a showroom without walls"
Levy <i>et al.</i> (2013, p. 67)	"[Omnichannel retailing is] a coordinated multichannel offering that provides a seamless experience when using all of the retailer's shopping channels"
Cummins <i>et al.</i> (2016, p. 5)	"[Omnichannel is] the synergetic integration of customer touchpoints and communication opportunities for the purpose of creating a unified brand experience regardless of channel, platform or stage in the selling process"
Hübner <i>et al.</i> (2016a, p. 257)	"Omnichannel [ . . . ] requires 'real-time, channel agnostic visibility' across the distribution systems"
Juaneda-Ayensa <i>et al.</i> (2016, p. 3)	"The dominant characteristic of the omnichannel retailing is that the strategy is centered on the customer and the customer's shopping experience [ . . . ]"
Ailawadi and Farris (2017, p. 120)	"The concept of omnichannel accepts the inevitability of needing to employ multiple channels and is focused on integrating activities within and across channels to correspond to how consumers shop"
Huré <i>et al.</i> (2017, p. 315)	"Omni-channel could be referred to as the complete alignment of the different channels and touch points, resulting in [ . . . ] customer experience"
Gao and Su (2017b, p. 2,478)	"Omnichannel retailing has the goal of providing customers with a seamless shopping experience through all available shopping channels"
Melacini <i>et al.</i> (2018, p. 392)	"OC [omnichannel] retailing is first and foremost a major logistics challenge because e-commerce differs from the traditional retail in many aspects"
Alexander and Cano (2020)	"The concept of omnichannel represents a shift in the retail paradigm (Verhoef <i>et al.</i> , 2015) precisely because it is rooted in consumer behavior. [ . . . ] and its emphasis is the interplay between channels and brands"
Lynch and Barnes (2020, p. 2)	"Omnichannel retailing is geared towards serving customers when and how they want [which] has consequences for operational retail strategy, since the approach digresses away from the more silo-like perspective multichannel retailing research"

**Table A1.**  
Main Omnichannel  
definitions



**Figure A1.**  
Network representation of the four clusters resulting from the co-citation analysis



**Figure A2.**  
Density representation of the four clusters resulting from the co-citation analysis



Author(s)	Year	Title	Source
<i>Cluster 1: Consumer behavior</i>			
Ansari, A., Mela, C.F. and Neslin, S.A.	2008	Customer channel migration	<i>Journal of Marketing Research</i>
Avery, J., Steenburgh, T.J., Deighton, J. and Caravella, M.	2012	Adding bricks to clicks: predicting the patterns of cross-channel elasticities over time	<i>Journal of Marketing Research</i>
Babin, B.J., Darden, W.R. and Griffin, M.	1994	Work and/or fun: measuring hedonic and utilitarian shopping value	<i>Journal of Consumer Research</i>
Baxendale, S., Macdonald, E.K. and Wilson, H.N.	2015	The impact of different touchpoints on brand consideration	<i>Journal of Retailing</i>
Gensler, S., Verhoef, P.C. and Böhm, M.	2012	Understanding consumers' multichannel choices across the different stages of the buying process	<i>Marketing Letters</i>
Grewal, D., Roggeveen, A. and Nordfalt, J.	2017	The future of retailing	<i>Journal of Retailing</i>
Konus, U., Verhoef, P.C. and Neslin, S.A.	2008	Multichannel shopper segments and their covariates	<i>Journal of Retailing</i>
Kumar, V. and Venkatesan, R.	2005	Who are the multichannel shoppers and how do they perform?: correlates of multichannel shopping behavior	<i>Journal of Interactive Marketing</i>
Lemon, K.N. and Verhoef, P.C.	2016	Understanding customer experience throughout the customer journey	<i>Journal of Marketing</i>
Melis, K., Campo, K., Breugelmans, E. and Lamey, L.	2015	The impact of the multi-channel retail mix on online store choice: does online experience matter?	<i>Journal of Retailing</i>
Neslin, S.A., Grewal, D., Leghorn, R., Shankar, V., Teerling, M.L., Thomas, J.S. and Verhoef, P.C.	2006	Challenges and opportunities in multichannel customer management	<i>Journal of Service Research</i>
Neslin, S.A. and Shankar, V.	2009	Key issues in multichannel customer management: current knowledge and future directions	<i>Journal of Interactive Marketing</i>
Pauwels, K. and Neslin, S.A.	2015	Building with bricks and mortar: the revenue impact of opening physical stores in a multichannel environment	<i>Journal of Retailing</i>
Venkatesan, R., Kumar, V. and Ravishanker, N.	2007	Multichannel shopping: causes and consequences	<i>Journal of Marketing</i>
Verhoef, P.C., Neslin, S.A. and Vroomen, B.	2007	Multichannel customer management: understanding the research-shopper phenomenon	<i>International Journal of Research in Marketing</i>
Verhoef, P.C., Kannan, P.K. and Inman, J.J.	2015	From multi-channel retailing to Omnichannel retailing: introduction to the special issue on multi-channel retailing	<i>Journal of Retailing</i>
Wallace, D.W., Giese, J.L. and Johnson, J.L.	2004	Customer retailer loyalty in the context of multiple channel strategies	<i>Journal of Retailing</i>
Wang, R.J.H., Malthouse, E.C. and Krishnamurthi, L.	2015	On the go: how mobile shopping affects customer purchase behavior	<i>Journal of Retailing</i>
<i>Cluster 2: Strategic management</i>			
Bell, D.R., Gallino, S. and Moreno, A.	2014	How to win in an Omnichannel world	<i>MIT Sloan Management Review</i>
Bell, D.R., Gallino, S. and Moreno, A.	2018	Offline showrooms in omni-channel retail: demand and operational benefits	<i>Management Science</i>
Brynjolfsson, E., Hu, Y.J. and Rahman, M.S.	2013	Competing in the age of Omnichannel retailing	<i>MIT Sloan Management Review</i>
Gallino, S. and Moreno, A.	2014	Integration of online and offline channels in retail: the impact of sharing reliable inventory availability information	<i>Management Science</i>
Gao, F. and Su, X.	2017b	Omnichannel retail operations with buy-online-and-pick-up-in-store	<i>Management Science</i>

(continued)

**Table A2.**  
Details of the 50 papers  
emerging from the  
cluster analysis

Author(s)	Year	Title	Source
Gao, F. and Su, X.	2017a	Online and offline information for Omnichannel retailing	<i>Manufacturing and Service Operations Management</i>
Ofek, E., Katona, Z. and Sarvary, M.	2011	“Bricks and clicks”: the impact of product returns on the strategies of multichannel retailers	<i>Marketing Science</i>
Rapp, A., Baker, T.L., Bachrach, D.G., Ogilvie, J. and Beitelspacher, L.S.	2015	Perceived customer showrooming behavior and the effect on retail salesperson self-efficacy and performance	<i>Journal of Retailing</i>
Rigby, D.	2011	The future of shopping	<i>Harvard Business Review</i>
<i>Cluster 3: Channel management issues</i>			
Agatz, N.A., Fleischmann, M. and Van Nunen, J.A.	2008	E-fulfillment and multi-channel distribution – a review	<i>European Journal on Operational Research</i>
Ailawadi, K.L. and Farris, P.W.	2017	Managing multi-and omni-channel distribution: metrics and research directions	<i>Journal of Retailing</i>
Beck, N. and Rygl, D.	2015	Categorization of multiple channel retailing in multi-, cross-, and omni-channel retailing for retailers and retailing	<i>Journal of Retailing and Consumer Services</i>
Bernon, M., Cullen, J. and Gorst, J.	2016	Online retail returns management: Integration within an omni-channel distribution context	<i>Journal of Physical Distribution and Logistics Management</i>
Cao, LL.	2014	Business model transformation in moving to a cross-channel retail strategy: a case study	<i>International Journal of Electronic Commerce</i>
Hübner, A., Holzapfel, A. and Kuhn, H.	2015	Operations management in multi-channel retailing: an exploratory study	<i>Operations Management Research</i>
Hübner, A.H., Kuhn, H., Wollenburg, J., Towers, N. and Kotzab, H.	2016b	Last mile fulfillment and distribution in omni-channel grocery retailing: a strategic planning framework	<i>International Journal of Retail and Distribution Management</i>
Hübner, A., Holzapfel, A. and Kuhn, H.	2016a	Distribution systems in omni-channel retailing	<i>Business Research</i>
Ishfaq, R., Defee, C.C., Gibson, B.J. and Raja, U.	2016	Realignment of the physical distribution process in omni-channel fulfillment	<i>International Journal of Physical Distribution and Logistics Management</i>
Lewis, J., Whysall, P. and Foster, C.	2014	Drivers and technology-related obstacles in moving to multichannel retailing	<i>International Journal of Electronic Commerce</i>
Melacini, M., Perotti, S., Rasini, M. and Tappia, E.	2018	E-fulfillment and distribution in omni-channel retailing: a systematic literature review	<i>International Journal of Physical Distribution and Logistics Management</i>
Murfield, M., Boone, C.A., Rutner, P. and Thomas, R.	2017	Investigating logistics service quality in omni-channel retailing	<i>International Journal of Physical Distribution and Logistics Management</i>
Picot-Coupey, K., Huré, E., Piveteau, L., Towers, N. and Kotzab, H.	2016	Channel design to enrich customers’ shopping experiences: synchronizing clicks with bricks in an omni-channel perspective-the Direct Optic case	<i>International Journal of Retail and Distribution Management</i>
Piotrowicz, W. and Cuthbertson, R.	2014	Introduction to the special issue information technology in retail: Toward omnichannel retailing	<i>International Journal of Electronic Commerce</i>
<i>Cluster 4: Channel integration</i>			
Bendoly, E., Blocher, J.D., Bretthauer, K.M., Krishnan, S. and Venkataraman, M.A.	2005	Online/in-store integration and customer retention	<i>Journal of Service Research</i>
Cao, LL. and Li, L.	2015	The impact of cross-channel integration on retailers’ sales growth	<i>Journal of Retailing</i>

Table A2.

(continued)

Author(s)	Year	Title	Source
Fornell, C.	1981	A comparative analysis of two structural equation models: LISREL and PLS applied to market data	/
Herhausen, D., Binder, J., Schoegel, M. and Herrmann, A.	2015	Integrating bricks with clicks: retailer-level and channel-level outcomes of online-offline channel integration	<i>Journal of Retailing</i>
Juaneda-Ayensa, E., Mosquera, A. and Sierra Murillo, Y.	2016	Omnichannel customer behavior: key drivers of technology acceptance and use and their effects on purchase intention	<i>Frontiers in Psychology</i>
Oh, L.B., Teo, H.H. and Sambamurthy, V.	2012	The effects of retail channel integration through the use of information technologies on firm performance	<i>Journal of Operations Management</i>
Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P.	2003	Common method biases in behavioral research: a critical review of the literature and recommended remedies	<i>Journal of Applied Psychology</i>
Saghiri, S., Wilding, R., Mena, C. and Bourlakis, M.	2017	Toward a three-dimensional framework for omni-channel	<i>Journal of Business Research</i>
Zhang, J., Farris, P.W., Irvin, J.W., Kushwaha, T., Steenburgh, T.J. and Weitz, B.A.	2010	Crafting integrated multichannel retailing strategies	<i>Journal of Interactive Marketing</i>

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