Customer loyalty in omnichannel retail: an AI-based literature review

Fidelización del cliente en el comercio minorista omnicanal: una revisión de la literatura basada en IA

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Abstract
With the rise of digital transformation retail companies have adopted an omnichannel strategy, to integrate online and offline channels and provide a seamless customer experience. The concept of omnichannel retail has gained popularity among researchers. However, limited research explores long-term customer satisfaction and topics such as loyalty or advocacy. This paper conducts a quantitative and qualitative analysis, revealing emerging trends in loyalty within omnichannel retail literature.
Keywords: omnichannel retail, customer loyalty, customer experience, LDA model

Resumen
Con el auge de la transformación digital, las empresas minoristas han adoptado una estrategia omnicanal para integrar canales en línea y fuera de línea y brindar una experiencia perfecta al cliente. El concepto de venta minorista omnicanal ha ganado popularidad entre los investigadores. Sin embargo, hay investigaciones limitadas que exploran la satisfacción del cliente a largo plazo y temas como la lealtad o la promoción. Este artículo realiza un análisis cuantitativo y cualitativo, revelando tendencias emergentes en la lealtad del cliente dentro de la literatura minorista omnicanal.
Palabras clave: retail omnicanal, fidelización de clientes, experiencia del cliente, modelo LDA

1. Introduction and theoretical framework

As digital transformation advances, consumers are increasing technology and social media usage. Consumers who are making heavy use of digital media are bombarded by marketing communication. Companies are leveraging the new communication opportunities brought by digitalization to be more present along the customer journey and to build touchpoints to acquire and retain customers. However, the proliferation of marketing channels increases the level of complexity for companies that want to promote their products online and offline. In particular, for retailers, the pressure from digital transformation has led to what we call 'omnichannel retail'.

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Omnichannel retail is a concept that refers to the practice of retailers to integrate multiple sales and communication channels, online and offline, in order to offer a better customer experience (Rigby, 2011). For a retailer, omnichannel not only means expanding and integrating sales channels, but also managing more touchpoints for marketing and communication. An omnichannel company needs to manage both offline and online channels in an integrated way, along the entire customer journey (Neslin, 2022).

While the majority of papers in the literature focus on the positive impact of omnichannel retail on purchases, few articles discuss the long term impact of omnichannel marketing in retail focusing on the post-purchase phase. Some researchers have started to put their focus on the impact of omnichannel marketing on consumers' preference for a brand, loyalty and repurchase. Nevertheless, there is not enough focus on this area yet. Therefore, the purpose of this study will be to conduct a literature review focused on the post-purchase phase to investigate what is the impact of omnichannel marketing and communication on customer loyalty. In order to do this, the authors will analyse the Web of Science database to extract articles about omnichannel retail, customer loyalty, and advocacy. The Systematic Literature Review (SLR) approach is followed, paired with a quantitative and a qualitative analysis, following Reyes-Menendez et al. (2020).

1.2. Omnichannel retail

The concept of omnichannel retail became popular in 2003, when the company Best Buy used this term for the first time to describe their customer-centric approach to retail. They realised that customers were using multiple channels to shop, and they wanted to create a seamless experience for them, no matter how they chose to shop. In the academic literature, Rigby (2011) was the first author to give a definition to omnichannel. He described omnichannel retail as an integrated sales experience which benefits from the advantages of physical stores and online shopping at the same time. This definition highlights the double nature of sales channels (online and offline) and their integration. Moreover, the author mentions the concept of 'experience', calling attention to the consumer perspective.

Not only Rigby, but also other authors relate to omnichannel retail as an 'experience'. In fact, the concept of omnichannel not only refers to a firm's strategy, but it also involves the customer experience. For example, Verhoef et al (2015) defined omnichannel management as the 'synergetic management of the numerous available channels and customer touchpoints, in such a way that the customer experience and the performance across channels is optimised' (Verhoef, 2015).

Omnichannel retail has evolved from the previous concept of 'multichannel' retail. While in multichannel retail the focus was mainly on the increase of sales and communication channels, in omnichannel there is a major focus on the customer's perspective (Beck & Rygl, 2015; Picot-Coupey et al., 2016). Based on previous research, the omnichannel retail literature focusing on consumers has been growing in the past few years (Failli Forzoni et al. 2022). However, there is still a gap in research that investigates customer loyalty. Therefore, the present paper will focus on analysing omnichannel strategies and marketing in retail and the way they relate to customer loyalty and advocacy. Some studies that focus on customer loyalty in the omnichannel context have already emerged. Therefore, we will perform an in-depth analysis of the papers that associate omnichannel and loyalty in the retail industry.

1.3. Loyalty

Customer loyalty has been defined as a commitment to rebuy or reconsider a preferred product or service, that leads to repeated purchase of the same brand, regardless of marketing communications from different brands (Oliver, 1999). In the earliest definitions, loyalty was considered more from a transactional point of view, as a repurchase intention. Based on this perspective, customer loyalty can be calculated as follows:

$$\textbf{Share of Wallet} = \frac{\text{Amount spent on brand X}}{\text{Total amount spend on category of brand X}}$$

$$\text{Retention Rate} = \frac{(\text{\# customers at t} + 1) - (\text{\# of new customers})\#}{\text{\# customers at t} = 0} \times 100$$

Lately, loyalty has been defined more as a feeling of attachment to a product or brand, rather than simply the action of purchasing multiple times (Casidy & Wymer, 2016). Chaudhuri and Hoolbrook (2001) explained that loyalty can have a behavioural or attitudinal nature. Behavioural loyalty refers more to the concept of transactional loyalty, as it occurs when a customer makes repeated purchases of the same brand or product, but without an emotional attachment. In this case, the customer might have faced a lack of choice or impossibility to choose a different brand. On the other hand, attitudinal loyalty is characterised by a real preference for a product or brand, that may or may not lead to repurchase.

As this type of loyalty does not necessarily lead to purchasing a product more times, marketers have developed the concept of "advocacy" to describe a specific situation of attachment to a brand that leads to word of mouth instead of repeated purchase (De Regt et al., 2021). Advocacy is considered as an indicator to identify loyalty. In fact, it demonstrates attitudinal loyalty and can be considered as a positive outcome of the interaction between a consumer and a brand, even when the customer has not bought again for the same brand. According to Fullerton (2011), customer advocacy is the 'willingness of people to give strong recommendations and praise to other consumers on behalf of a product or service supplier'. Previous research explained that customers who are considered loyal to a brand have the willingness to endorse and recommend the brand to their friends and family (Kotler et al., 2017).

1.4. Omnichannel loyalty

Some authors have focused on analysing loyalty in an omnichannel context. By focusing on omnichannel loyalty, companies aim to maximise customer experience across all channels throughout the entire customer journey. In particular, the omnichannel communication is delivered at the right time and on the right channel for each consumer (Hemsey, 2012). With this new approach to loyalty, companies need to structure a solid omnichannel communication strategy, focusing on the design and management of the different touchpoints that the customer will interact with, to make sure they can build the foundations for customer loyalty since the first interactions between brand and consumers (Homburg et. al, 2015; Ziliani & Leva, 2020). The main authors that have focused on omnichannel retail are summarised in table 1.

Table 1
Main authors from literature review

Author	Title	Methodology
Philip Kotler, Giuseppe Stigliano	Retail 4.0	Book
Kotler, Hermanwan, & Setiawan, 2021	Marketing 5.0	Book
Rigby, 2011	The Future of Shopping	Book
Ziliani & Leva, 2020	Loyalty Management: From Loyalty Programs to Omnichannel Customer Experiences	Book
Chaudhuri and Hoolbrook, 2001	The Chain of Effects From Brand Trust and Brand Affect to Brand Performance: The Role of Brand Loyalty	Literature review

Author	Title	Methodology
Homburg, Jozić, & Kuehnl, 2015	Customer experience management: Toward implementing an evolving marketing concept	Mixed: innovation diffusion theory (IDT) and survey
Casidy & Wymer, 2016	A risk worth taking: Perceived risk as moderator of satisfaction, loyalty, and willingness-to-pay premium price	Survey
Beck & Rygl, 2015	Categorization of multiple channel retailing in Multi-, Cross-, and Omni-Channel Retailing for retailers and retailing	Literature review
Picot-Coupey, Huré, & Piveteau, 2016	Channel design to enrich customers' shopping experiences: synchronizing clicks with bricks in an omni-channel perspective - the Direct Optic case	In-depth case study (ethnography)
Reyes-Menendez et al., 2018	Understanding the Influence of Wireless Communications and Wi-Fi Access on Customer Loyalty: A Behavioral Model System	Survey

The relationship between customer loyalty and omnichannel retail is a topic that continues to expand. In particular, some authors have analysed how the concept of loyalty has evolved, and how it can be influenced at every touchpoint and from the early stages of the customer experience. If an omnichannel strategy in retail can improve the customer experience, then this concept can also have an impact on loyalty based on the quality of the experience. The present paper presents an in-depth analysis of the existing literature that focuses on omnichannel retail related to loyalty and/or advocacy concepts.

2. Methodology

This paper aims to perform a systematic literature review (SLR) to analyse the existing research developments in omnichannel retail (Gerea et al., 2021). In particular, this research will focus on the role of consumer loyalty in omnichannel retail, as this is currently an underdeveloped topic in the literature (Failli Forzoni et al., 2022). Scholars such as Webster & Watson (2002), Stieglitz et al. (2018), and Saura (2021) agree that a theoretical framework that validates prior research is essential to lend credibility to any type of research and to advance the field. For this reason, the authors of this paper started from analysing existing articles that deal with omnichannel retail, communication, loyalty, and advocacy. Then the articles were classified to identify which articles specifically analyse the topic of loyalty related to omnichannel.

To identify relevant articles, the scientific database of Web of Science was used, as it includes articles from several publishers and from different research fields. The search on Web of Science produced 1503 results. The following advanced search was performed to retrieve articles related to omnichannel retail, that also included either loyalty, advocacy, communication, or consumer-related topics:

"(TS=(retail)) AND ((TS=(omnichannel OR multichannel AND loyalty)) OR TS=(omnichannel OR multichannel AND communication)) OR TS=(omnichannel OR multichannel AND advocacy)) OR TS=(omnichannel OR multichannel AND consumer)"

2.1. Chronological publication analysis

By running a chronological publication report, it is evident how the interest for these topics significantly increased in the past 10 years, as shown in Figure 1. The research in Web of Science was performed between January and March 2023, therefore the data for this year is incomplete and this year is not included in the analysis.

Figure 1
Chronological report
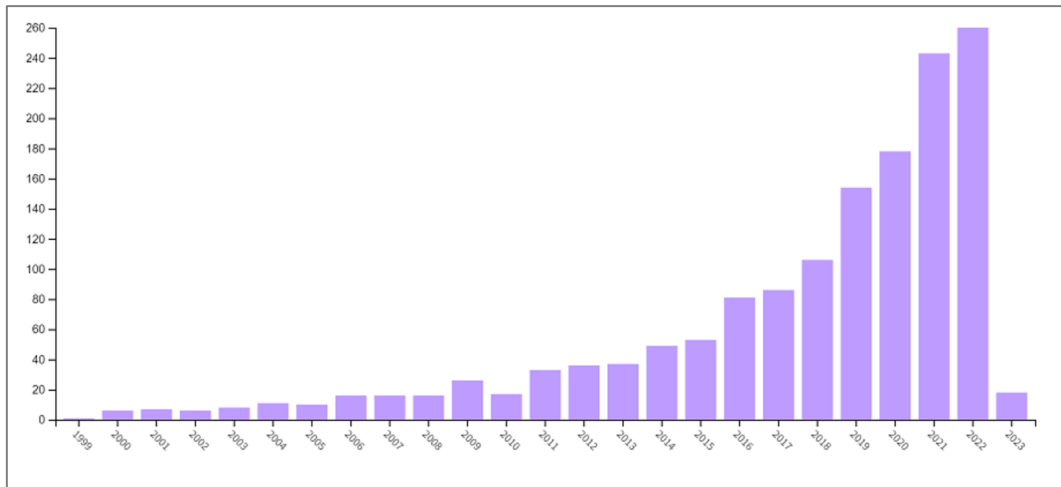
Source: Web of Science

The number of publications related to omnichannel and consumer in the post-purchase phase (loyalty, advocacy, communication), has grown exponentially in the past ten years, with an average growth rate of 28% between 2011 and 2022. In particular, the authors have done a deep dive on the years with the highest yearly growth rate in publications. Year 2011 is the year with the highest growth, as the number of publications almost doubled compared to 2010 (+94%). It is important to also highlight more recent years, such as 2019 and 2021, that have marked a significant growth in the number of publications in this field. In 2019 there was a +45% growth compared to 2028, and in 2021 36% more articles were published compared to 2020. The number of publications per year is reported in table 2.

Table 2
Number of publications per year

Publication years	Record count	% of 1503
2023	18	1.20%
2022	260	17.28%
2021	243	16.15%
2020	178	11.83%
2019	154	10.23%
2018	106	7.04%
2017	86	5.71%
2016	81	5.38%
2015	53	3.52%
2014	49	3.26%
2013	37	2.46%
2012	36	2.39%
2011	33	2.19%
2010	17	1.13%
2009	26	1.73%

Source: Web of Science

The authors analysed the text of the abstract of the selected articles to identify key themes and differences arising each year. From a text analysis performed with word cloud it can be noticed that 2010 and 2011 share

three main terms: multi-channel, online, and channel. Beyond these key terms, the abstract of the articles written in 2010 also show 'regulations', 'customers', 'purchase', 'offline', 'customer' and 'satisfaction' as the most mentioned words. Figure 2 and Figure 3 can be compared to see the word cloud with the main terms from the articles published in 2010 and 2011.

In 2011, we see the word 'customer' or 'consumer' repeated more times, accounting for 7.5% of the total words contained in the abstracts, for a total of 140 consumer-related terms. In addition, we see the rise of 'behaviour', 'research', and 'purchase'. Therefore, it can be assumed that in 2011 there was a higher attention on the customer journey related to multi-channel purchases. In all the articles, both in titles and abstracts, the term 'multi-channel' is used, as opposed to 'omni-channel'. In fact, it was only in 2015 that the focus shifted from multi-channel to omni-channel, to meet the consumer needs, as written by the authors Beck & Rygl.

Figure 2
Year 2010: Most popular terms
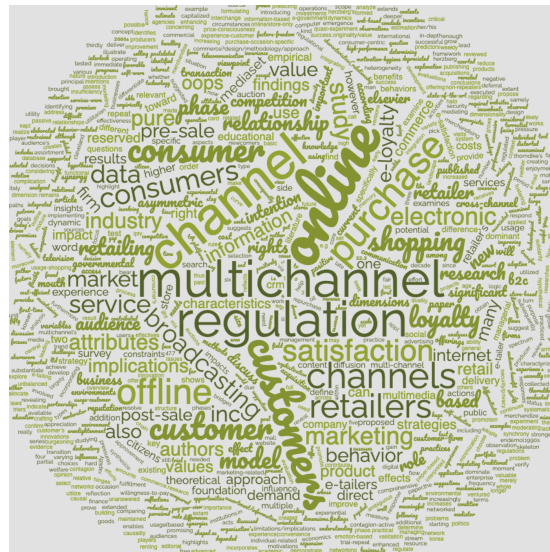summarised in word clouds

Figure 3
Year 2011: Most popular terms summarised in word clouds

The second period with the highest growth in authors' interest for omnichannel retail can be observed between 2018 and 2019. As opposed to 2010 and 2011, in 2018 we see that 'omni-channel' is the most common term mentioned in the abstracts. 'Multi-channel' is still used in 2018, but it disappears from the top terms in 2019. The articles are often mentioning words like 'consumer' in both years, proving that authors' interest in consumer behaviour is still growing. In this period we also see the rise of terms such as 'offline', 'store' and 'data'.

Finally, this paper observed when some keywords are in common with the years before. The terms 'experience' and 'strategy' stand out as compared to the previous years, indicating an evolution in the approach to this topic, that is more often referred to as a strategy that companies are considering implementing. For example, Asmare et al. (2022) specifically focuses on identifying the drivers of an omnichannel retail strategy. Gao et al. (2021) focus on the customer experience, explaining how this concept is crucial for retailers that have to adopt an omnichannel strategy.

2.2. PRISMA Model

This research continues with the application of the PRISMA Flow Diagram (Moher et al., 2009) to filter the results more precisely and exclude articles that did not match the search query or did not contain an abstract, following the approach of Reyes-Menendez et al. (2020). The initial search produced a total of 1503 results, out of which 18 written in 2023 were excluded. In fact, the objective of the analysis was to evaluate the literature also from a quantitative point of view, counting the number of articles written every year. As the research was conducted between January and March 2023, this year only had a small number of articles that could not be counted in the analysis. Moreover, the authors excluded 5 other papers from the results as they were not fitting the research topic. As a result, this analysis will be performed on a total of 1480 articles. Figure 4 shows the selection process operated following the model.

Figure 4
PRISMA Model
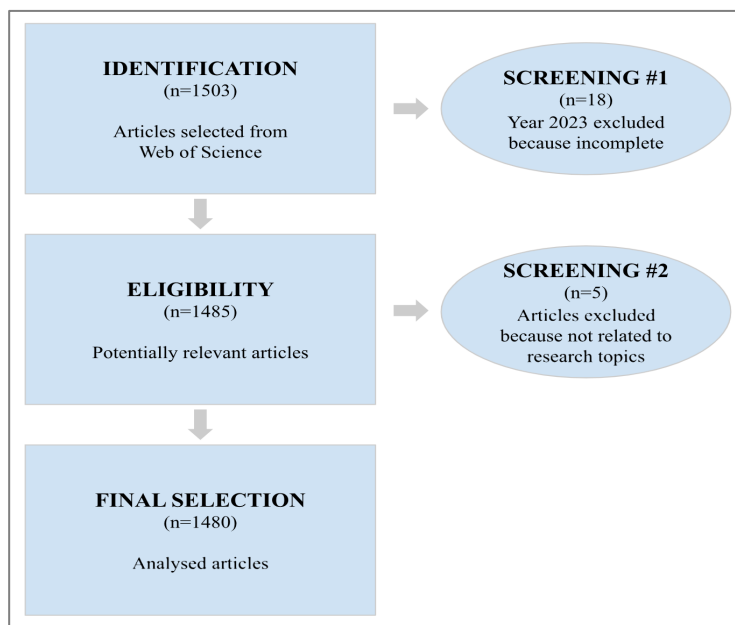
2.3. Content analysis with LDA model

To analyse the content of the selected paper, Saura et al., 2021 was followed. Therefore, the authors applied the LDA machine-based technique, which is a mathematical model based on artificial intelligence that can show the repetition and links between keywords contained in the abstracts of the selected articles.

The LDA (Dirichlet's Latent Dirichlet Assignment) model was used for topic modelling. Topic modelling is a research technique that allows to identify the themes contained in a selection of documents, that in this case are the articles selected from the WOS database. The LDA technique has become increasingly popular in natural language processing (NLP) and analysis of text, as it can be applied to classify text, document and information.

The model was developed with Python and allowed to analyse the topics of the selected articles from an observation of the relationship and the repetition of keywords. First, each paper was assigned a topic distribution. Then, for each word in the document, a topic is selected from the topic distribution of that paper, and then from each topic's word distribution a keyword is identified (Kherwa & Bansal, 2018). In this research, the LDA model has been used with the purpose to analyse the most popular keywords and topics in the selected dataset.

3. Results and discussion

3.1. Keywords

The table below summarises the main keywords analysed with the LDA model and how frequently they were present in the articles dataset.

'Customer' is the most frequent keyword, as omnichannel management is a company strategy aimed at enhancing the customer experience. 'Customer' is the most frequent keyword, present in every article, as it appears 1480 times. The synonym 'consumer' is also one of the most popular keywords, repeated 570 times. As omnichannel management is a company strategy aimed at enhancing the customer experience, the aim of this paper is to further investigate the omnichannel topic from the consumer perspective. Finding 'consumer' as the most popular term confirms an accurate selection of the papers that are analysed in this SLR.

Table 3
Keyword frequency

Rank	Keyword	Frequency
1	Customer	1480
2	Channel	1437
3	Omnichannel	1153
4	Retailer	1134
5	Store	1025
6	Consumer	570
7	Experience	527
8	Research	446
9	Purchase	437
10	Shopping	427
11	Product	407
12	Technology	362

Among the top keywords, other popular terms can be found, such as 'channel' (frequency=1437), 'omnichannel' (frequency=1153), and 'retailer' (frequency=1134), which are all keywords that are used to define the main topic of this paper. Moreover, keywords like 'experience', 'research', 'purchase', and 'shopping' suggest the relationship between omnichannel retail and the customer journey. Table 3 shows the rank of the top 12 keywords present in the articles and their frequency.

3.2. Topics coherence

After an initial observation of the most popular keywords in the selected dataset, the authors will analyse the topics of the articles. In order to evaluate topics, a topic coherence analysis was performed. Topic coherence in topic modelling refers to the degree to which the topics identified by the model are semantically related. The coherence score is calculated by measuring the similarity between the words in each topic. The higher the coherence score, the more semantically related the words in the topic are. The highest level of coherence can be reached with 24 topics (coherence=0.3395). This means that the LDA model has identified 24 topics that are semantically related and that make sense. These 24 topics will be analysed to restrict the research agenda and perform the final analysis (Figure 5).

Figure 5
Coherence by number of topics
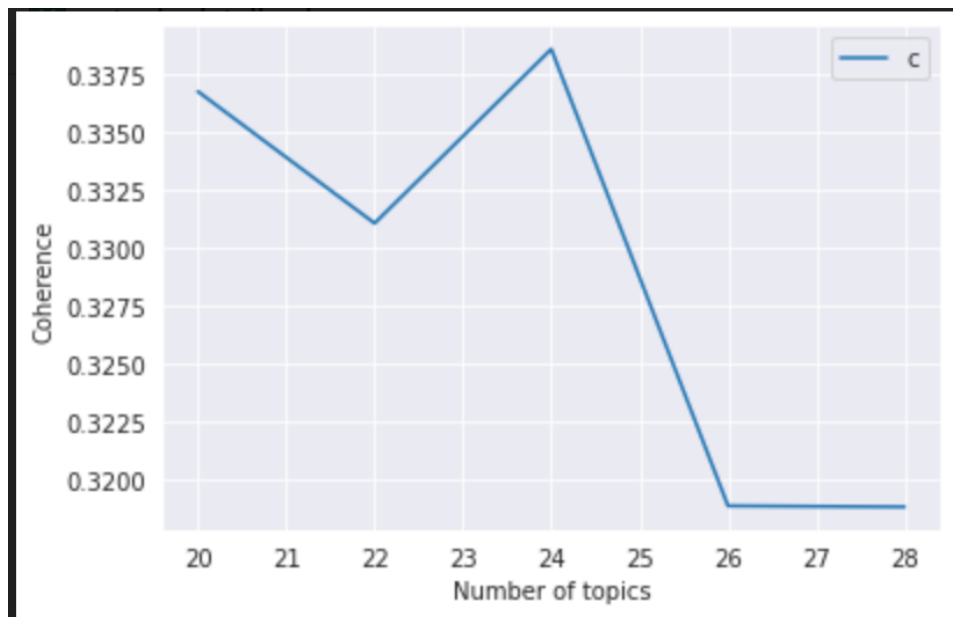
Among the 24 topics, one of more dominant topics can be identified. A dominant topic is more prevalent in a corpus than other topics. The words that are associated with the dominant topic are more likely to appear in the corpus than the words that are associated with other topics. The bar chart shows the topic coherence. The chart includes the level of coherence of the top 21 topics (excluding 3 topics with the lowest coherence). Topic 2 is the dominant topic, as it has the highest level of coherence. Topic 2 corresponds to 'channel integration' and it can be considered one of the most important topics discussed in the literature analysed with this study. The main topic is followed by topic 10 'customer loyalty', and topic 13 'channel strategy'.

Figure 6
Dominant topic
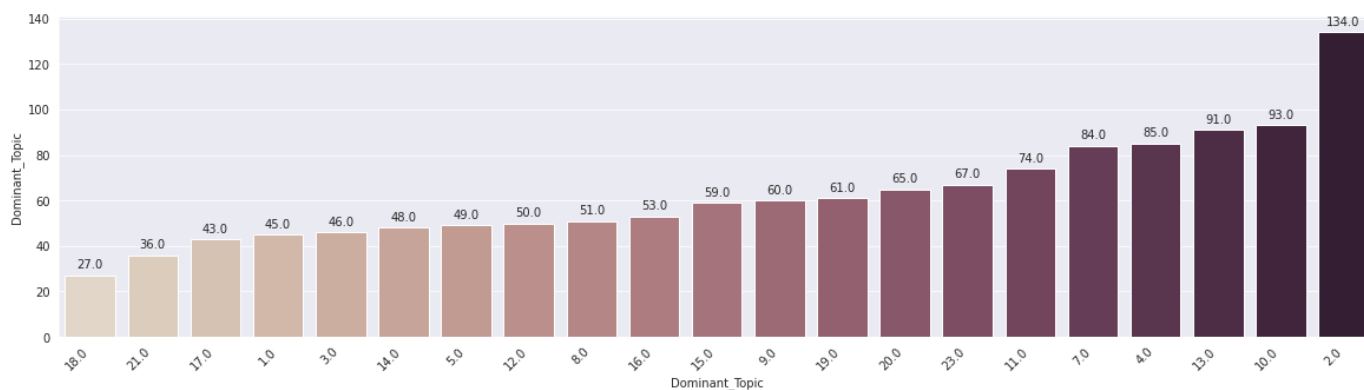
3.3. Topics contribution

The selected topics make different levels of contribution to the literature. Below, the table lists each topic, its level of contribution and keywords related to the topic. The topic with the highest contribution is 'shopping behaviour', followed by 'customer management', and 'in-store technology'. Moreover, numerous topics refer to consumer behaviour and channel management, suggesting how omnichannel management is a company strategy focused on enhancing the customer experience. Table 4 summarizes the topic tag, the percentage contribution and the main keywords related to each topic.

Table 4
Topic percentage contribution

Topic Number	Topic Tag	Topic Percentage Contribution	Keywords
21	Shopping behaviour	0.804	channel, shopping, customer, retailer, distribution, logistic, perceive, cost, consumer, omnichannel
22	Customer management	0.803	omnichannel, integration, customer, retailer, fashion, channel, distribution, approach, store, market
1	In-store technology	0.797	customer, channel, omnichannel, store, trust, intention, product, propose, technology, research
14	Product research	0.792	store, shopping, channel, retailer, showroom, consumer, omnichannel, behaviour, customer, research
3	Purchase determinants	0.786	store, channel, product, effect, purchase, sale, retailer, customer, marketing, consumer
20	Customer satisfaction	0.783	channel, omni, store, satisfaction, communication, customer, sale, pricing, effect, perception
2	Channel integration	0.780	retailer, customer, quality, channel, omnichannel, technology, research, experience, company, shopping
11	Marketing strategy	0.780	channel, omnichannel, strategy, experience, retailer, consumer, customer, business, information, marketing
23	Price sensitivity	0.778	channel, customer, search, purchase, store, quality, retailer, effect, price, perceive
5	Customer journey	0.777	showroom, omnichannel, retailer, channel, experience, customer, behaviour, research, return, purchase
24	Customer relationship	0.777	omnichannel, customer, shopping, experience, perceive, channel, research, relationship, intention, consumer

| Topic Number	Topic Tag	Topic Percentage Contribution	Keywords
4	Channel management	0.776	product, store, consumer, channel, brand, retailer, customer, manufacturer, sale, omnichannel
8	Consumer behaviour	0.775	channel, retailer, customer, sale, behaviour, consumer, price, coupon, research, soil
7	Retail strategy	0.775	customer, channel, store, price, retailer, sale, purchase, effect, manufacturer, omnichannel
6	Shopping experience	0.774	customer, integration, omnichannel, channel, experience, retailer, shopping, perceive, store, cx
13	Channel strategy	0.773	customer, distribution, channel, store, product, company, technology, framework, omnichannel, experience
10	Customer loyalty	0.773	bop, retailer, omnichannel, customer, channel, experience, loyalty, integration, store, shopper
17	Experience management	0.771	retailer, channel, customer, omnichannel, shopping, store, design, brand, product, purchase
12	Purchase intention	0.769	retailer, omnichannel, store, price, technology, channel, shopping, customer, strategy, intention
19	eCommerce strategy	0.764	commerce, retailer, customer, experience, pricing, technology, shopping, channel, lsq, strategy
9	Omnichannel retail	0.764	retailer, customer, store, omnichannel, experience, commerce, return, channel, purchase, fashion
16	Omnichannel operations	0.762	channel, customer, marketing, retailer, omni, fulfilment, omnichannel, brand, store, consumer
18	Omnichannel returns	0.755	customer, segment, store, omnichannel, return, information, product, behaviour, experience, consumer
15	Customer engagement	0.746	customer, omnichannel, channel, engagement, technology, user, retailer, brand, information, integration

3.4. Clusters of topics

After listing all the topics and their percentage contributions, the authors analysed the distance between topics, called 'inter-topic distance'. Each bubble represents one topic, which is indicated with the number and name of the table above. Finally, by analysing the keywords of each topic and the position in the chart, three clusters of topics can be identified: (1) Company strategy; (2) Customer experience; (3) Omnichannel management.

The cluster identified as 'company strategy' contains the topics with the highest distance from other topics. In fact, these themes are more related to high-level retail, marketing, or product strategy. Most topics related to consumers have a very little inter-topic distance, and their position is also very close to omnichannel-related topics. The two clusters of 'omnichannel management' and 'customer experience' are extremely close and almost overlapping with each other. It can be stated that the two topics are part of an entire large topic, where the boundaries between omnichannel management and customer experience are blurred. An omnichannel strategy for retailers seems to be essential for companies that want to ensure a positive experience for their customers. The topics of customer loyalty (6) and shopping experience (10) are overlapping with each other and in between the cluster of customer experience and omnichannel management. This suggests that the paper analysed by the authors often finds loyalty and shopping experience as two correlated topics. However, loyalty is at the extreme of the chart, a factor that proves how this concept is still not investigated in relationship with the omnichannel retail strategy, but rather with the shopping experience or the customer management strategy in general. In addition, it can be observed how the topics in the company strategy cluster (topics 23, 3, 14, 17, 11) are the most prominent themes in the corpus of the analysed articles. None of these themes focuses on the

consumer perspective. These five most prominent themes are mainly related to the internal organisational aspects of a company, indicating that despite the increasing popularity in research that focuses on consumers, the literature around omnichannel retail is still centred on business-related topics. Figure 7 showcases the clusters of topics.

Figure 7
Inter-topic distance map
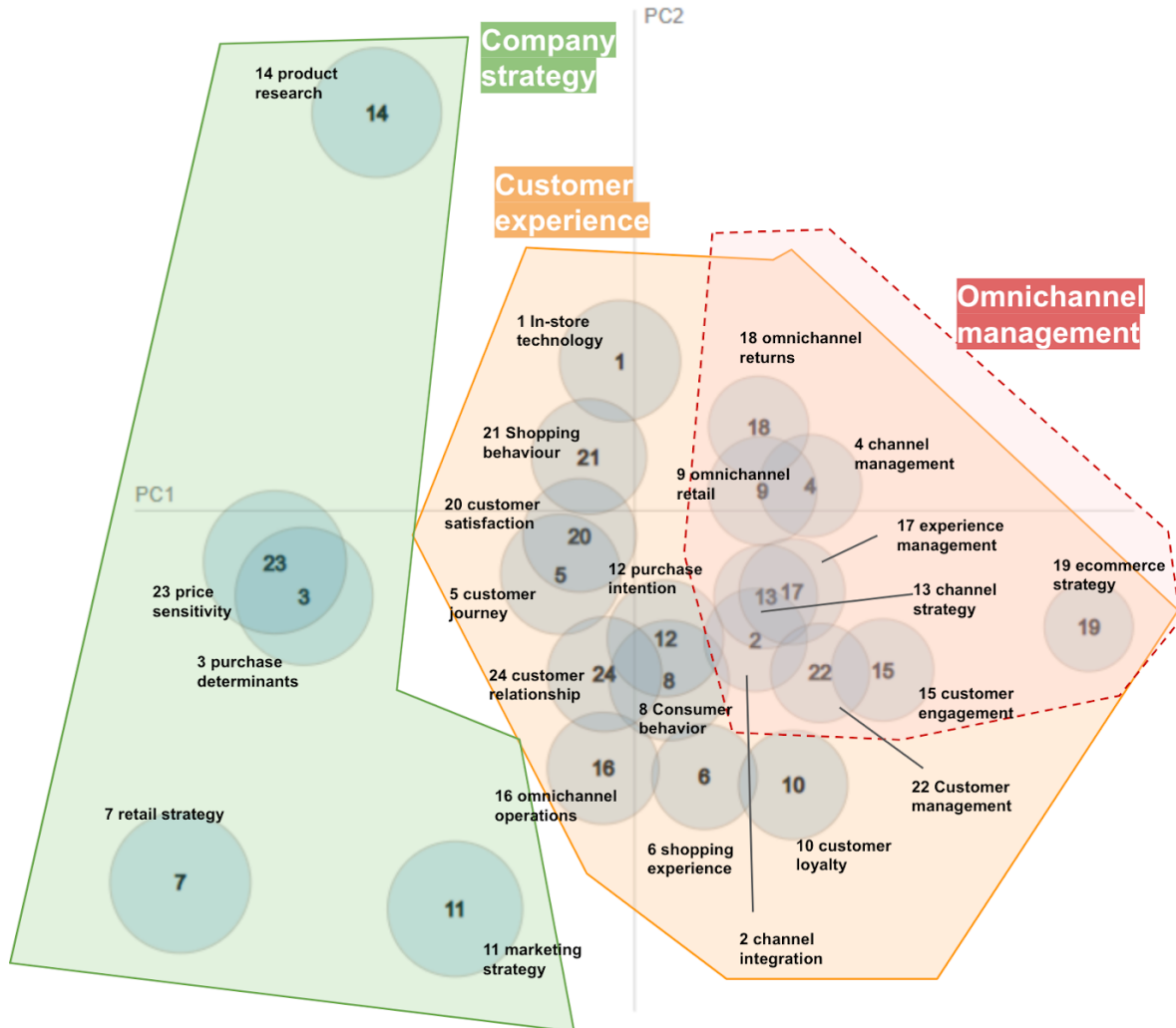
3.5. Most salient terms

The most salient terms by frequency were analysed to better understand the details of the topics identified in the articles selected. The most salient term is 'distribution', followed by 'integration' and 'loyalty'. Therefore, the concept of loyalty is arising as the third most salient term among the articles selected. The terms 'logistics', 'manufacturer', and 'return' are also among the most salient terms, suggesting that several papers in the literature still focus on company-centric and operational concepts, rather than customer-centric themes such as loyalty. Figure 8 ranks the top-30 most salient terms by frequency.

Figure 8
Top-30 Most Salient Terms
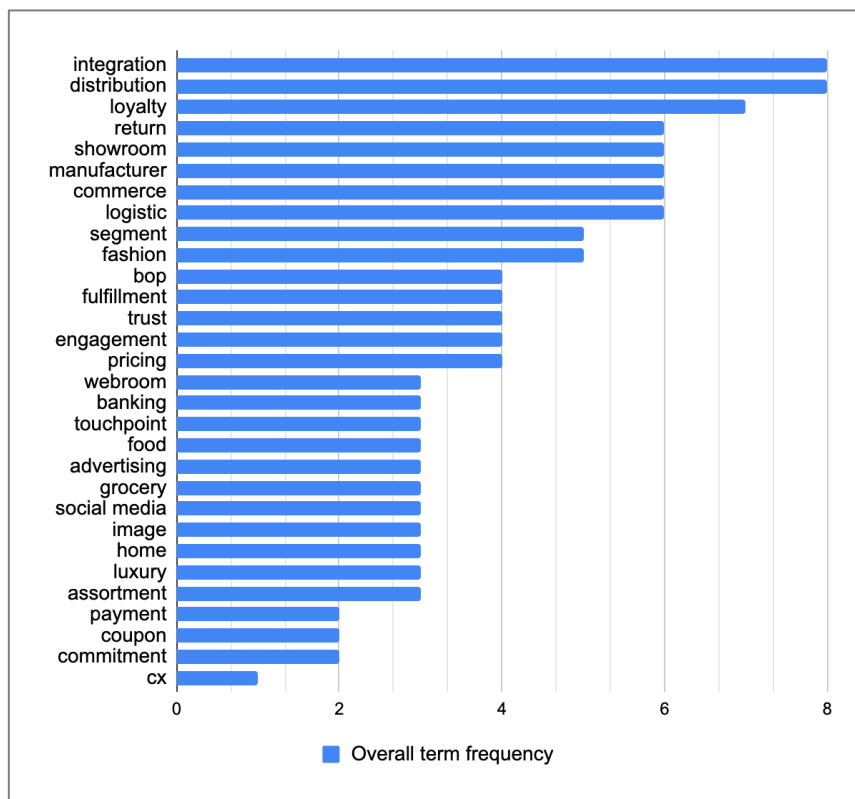
4. Conclusions

This research had the objective to analyse the current literature that focuses on consumer loyalty in the field of omnichannel retail. A systematic literature review was carried out with a qualitative and quantitative analysis. The research methodology started with a chronological analysis of existing papers in the database Web of Science. The chronological report showed an exponentially growing trend in the field of omnichannel retail related to loyalty. To perform the SLR, the papers were filtered according to the PRISMA model, to only examine relevant papers. After applying the filter criteria, 1480 articles were selected as the most relevant ones. The study continues with the analysis of the content of the chosen papers with the LDA model. The LDA model was used to perform topic modelling, in order to extract insights that would be difficult or impossible to identify manually in a large dataset. This research method allowed the authors to identify the most important themes contained in the corpus of articles about omnichannel retail and loyalty. The analysis reported results about keywords and topics contained in the corpus. First of all, the most common keywords of the articles were identified: customer, channel, omnichannel, and retailer. Then, the topics were examined to find the following details: number of topics with the highest coherence, topic coherence ranking, topic percentage contribution ranking, clusters of topics, and most salient terms. A number of 24 topics were analysed within the database, as this is the amount of topics with the highest level of coherence. In terms of coherence, the main topics are channel integration (topic 2), customer loyalty (topic 10), and channel strategy (topic 13). The topics that make the largest percentage contribution in the dataset are shopping behaviour (topic 21), customer management (topic 22) and in-store technology (topic 1). Subsequently, the topics were analysed altogether, to understand the correlation between topics and to identify clusters of topics in an inter-topic distance map. Three clusters were identified: company strategy, customer experience, and omnichannel management. The inter-topic distance map showed a higher distance of the company strategy cluster from the other two clusters. On the other hand, the clusters of customer experience and omnichannel management seem to be overlapping with each other, forming one large cluster

where topics are really close to each other and even intersecting in many cases. Finally, the study shows the most salient terms of the corpus: distribution, integration, and loyalty. Therefore, loyalty emerges among the topics with the highest coherence and among the most salient terms. In the inter-topic distance map, loyalty is almost at the extreme of the chart, showing an overlap with shopping experience, in the customer experience cluster, but quite close to the omnichannel management cluster. Table 5 below summarises the main concepts that arise from this paper.

Table 5
Key findings

Key metrics	Result	Observations
Most popular keywords	Customer Channel Omnichannel Retailer	Loyalty is not listed among the keywords. This means that although this topic is mentioned in the literature, it is not the central theme of the articles.
Dominant topics	Channel integration (T2) Customer loyalty (T10) Channel strategy (T13)	Two out of the three most dominant topics are related to the concept of "channel". This means that the majority of topics in this field still deal with omnichannel retail from a company-centric point of view.
Topics with highest percentage contribution	Shopping behaviour (T21) Customer management (T22) In-store technology (T1)	The presence of in-store technology among these topics suggests how technology is at the basis of omnichannel management. The other two terms are related to the customer, suggesting that some researchers are taking into consideration the customer experience when discussing omnichannel retail.
Clusters of topics	Company strategy Customer experience Omnichannel management	These clusters suggest the three main themes to which the topics belong. Omnichannel management is therefore a result of a mix between company-related topics and consumer-related subjects. This finding is coherent with Rigby definition of omnichannel, where he highlights two main concepts: the channel and the customer.
Most salient terms	Distribution Integration Loyalty Logistics Manufacturer Return	The search query on Web of Science included omnichannel and loyalty to find relevant papers. Therefore, it is normal to find loyalty among the most salient terms. However, other terms suggest that the focus of the omnichannel literature is still leaning towards company-related topics such as distribution, integration, logistics, etc.

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