Using bibliometric analysis to perform a longitudinal review of the technology-driven literature on customer experience

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USING BIBLIOMETRIC ANALYSIS TO PERFORM A LONGITUDINAL REVIEW OF THE TECHNOLOGY-DRIVEN LITERATURE ON CUSTOMER EXPERIENCE

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Abstract:

This paper proposes a systematic review of the literature on customer experience, focused on technology-driven contributions. It is based on the bibliometric analysis of a large set of 846 articles published from 1982 until 2020. The combination of various methods, namely bibliographic coupling and co-occurrence analysis, allows us to identify key contributing academic journals as well as the longitudinal trend of major research topics. Moreover, the results of a co-citation analysis based on 35,658 cited references show that four different clusters compose the intellectual structure of this stream of literature: (1) addressing the conceptualization of customer experience and its components, centered on customers; (2) firms' performance and competitiveness; (3) centered on users' technology acceptance; (4) various contributions related to consumers' perspective and perceptions (e.g. satisfaction, trust).

Keywords: bibliometry, customer, technology,

Track: Methods, Modelling & Marketing Analytics

1. Introduction

Academics have paid close attention to *customer experience* for several decades and their interest for this topic has been continuously increasing over the years. Following the initial conceptualization by Pine & Gilmore (1998) of *experience* as a distinct economic offering, customer experience has been defined as a multidimensional construct focusing on a customer's cognitive, emotional, behavioral, sensorial, and social responses (Lemon & Verhoef, 2016). On the practitioners' side, Gartner's survey reveals that as many as 81% of marketing managers expect to be competing mostly or completely on the basis of customer experience (Pemberton, 2018). Recently, a number of important technological advances appear to have significantly impacted the way customers interact with companies and brands alike. This includes, but is not limited to, the digitalization of a number of customer touch points by leveraging various online environments. Such a technological shift is likely to have a profound impact on the entire customer experience, and the role of technology has gained so much prominence that we consider it warrants a dedicated literature review. Indeed, a few literature reviews related to customer experience are already available (Ferreira & Teixeira, 2013; Silva, Mendes, Cauchick-Miguel, & Amorim, 2020). However, none of them includes findings pertaining to the last two years of research published in 2019 and 2020 respectively. This is important because this field of research has been increasingly very significantly lately, to the point that the number of articles published in 2019 and 2020 represents as many as 25% of all publications. Moreover, none of these reviews focuses specifically on the technological dimension of this research stream. Hence, by including the most recent research insights and focusing specifically on technology-oriented research, we will be able to investigate the latest trends pertaining to various technological innovations. As such, the purpose of this review is to identify the major trends and themes influencing this expanding field of research in order to understand its underlying structure and specific patterns to ultimately discern some new trends that are likely to influence future streams of research.

2. Methodology: Bibliometrics

Bibliometric analysis, often referred to as "science mapping," is based on a quantitative approach of bibliographical elements and is used to describe, evaluate and monitor published research. It relies on the social network theory: articles referencing each other form a social network in which knowledge is the valued resource, and citations are the medium of exchange. This method is not new (Price, 1976), yet recently it has become more popular and easier to use with the digitization of the research content, the access to online databases such

as Web of Science and Scopus, along with the development of specific software for conducting bibliometric analysis (Zupic & Čater, 2015). Using the bibliometric methodology has several advantages: (1) it is comprehensive and permits the analysis of a large number of publications, in our case several hundred articles; it is also a way to include in the review process all types of studies such as quantitative as well as qualitative, conceptual and empirical research, contrary to the meta-analysis, for example, which is mainly based on quantitative findings; (2) it is objective, as opposed to conceptual reviews, considered subjective as they depend on the researchers' interpretations, choices, and even biases; (3) it does not consider authors independently or in isolation but rather takes into consideration a pattern of relationships between them; (4) it is empirical and systematic hence reproducible.

In this study we intend to leverage different types of bibliometric analyses to show that they can complement each other. More specifically we plan to use bibliographic coupling, co-citation and co-occurrence analysis. Bibliographic coupling considers the references two publications have in common as a measure of similarity between them: the more cited references they share, the stronger their connection. Another type of analysis is based on co-citations: two authors are considered as being co-cited when they appear conjointly in the reference list of a subsequent article. When authors co-occur in the references list, it can be interpreted as a form of relatedness. Finally, a third type of analysis, the co-occurrence analysis, uses the textual data of the concerned publications such as keywords, titles or abstracts, and calculates the number of occurrences of the different terms as well as their co-occurrences. Next we detail our data collection methodology.

Step 1: Database choice - Similar to other bibliometric reviews in the management field (Samiee & Chabowski, 2012), we decided to leverage the academic database Web of Science, which includes the Social Sciences Citation Index (SSCI).

Step 2: Keywords selection – In order to encompass the literature related to customer experience, and to focus on technology-oriented findings we ran the following query: ["customer service" AND techno*] OR ["customer experience" AND techno*]. This search returned 1559 results.

Step 3: Document type - Similar to many other systematic literature reviews, we decided to focus solely on articles published in journals, excluding conference proceedings, editorial material and books. This resulted in 987 articles.

Step 4: Excluding engineering-related contributions – As this study is aimed at collecting and analyzing findings related to social sciences, we excluded engineering-related articles. This resulted in 846 articles.

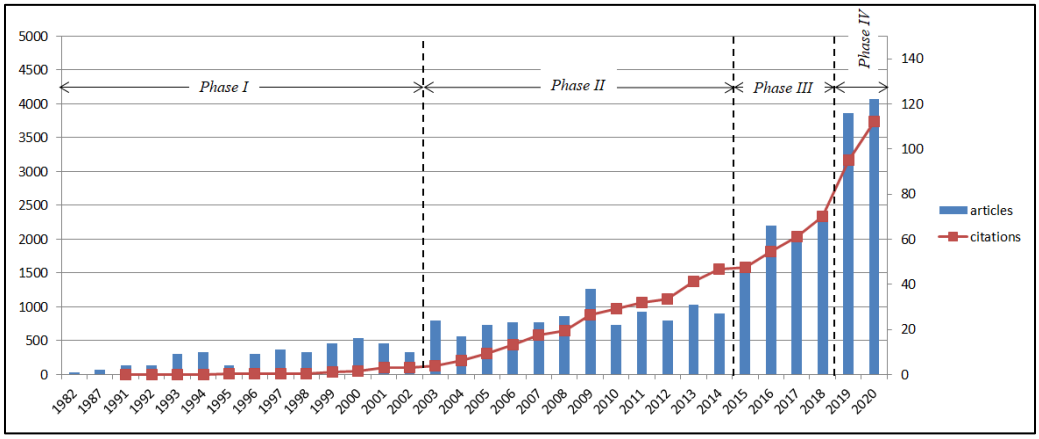
Finally, to perform our analysis, we chose the visualization of similarities VOSviewer software because it is gaining momentum in management studies and has been shown to provide a more satisfactory representation of bibliometric datasets, compared to well-known multidimensional scaling (MDS).

3. Results

3.1. General trends and statistic

It is possible to identify different phases in terms of both productivity (based on the number of articles) and influence (based on the number of citations). Figure 1 shows both the publication and citation trends over time along with the four distinct phases identified.

Figure 1. Yearly publication and citation trends from 1982 until 2020



Phase I - From 1982 until 2002. In this initial phase, the number of articles published grows slowly from a handful per year up to as many as 20/year. There is also a gradual growth in citations to slightly over 100 in 2002.

Phase II - From 2003 until 2014. During this consolidation phase, an average of 20 articles per year had been published. Towards the second half of Phase II, while the number of publications stays somewhat stable around 25/year, the number of citations sees a significant increase with up to as many as over 1500 citations in 2014. This sharp peak in interest is probably announcing the next phase.

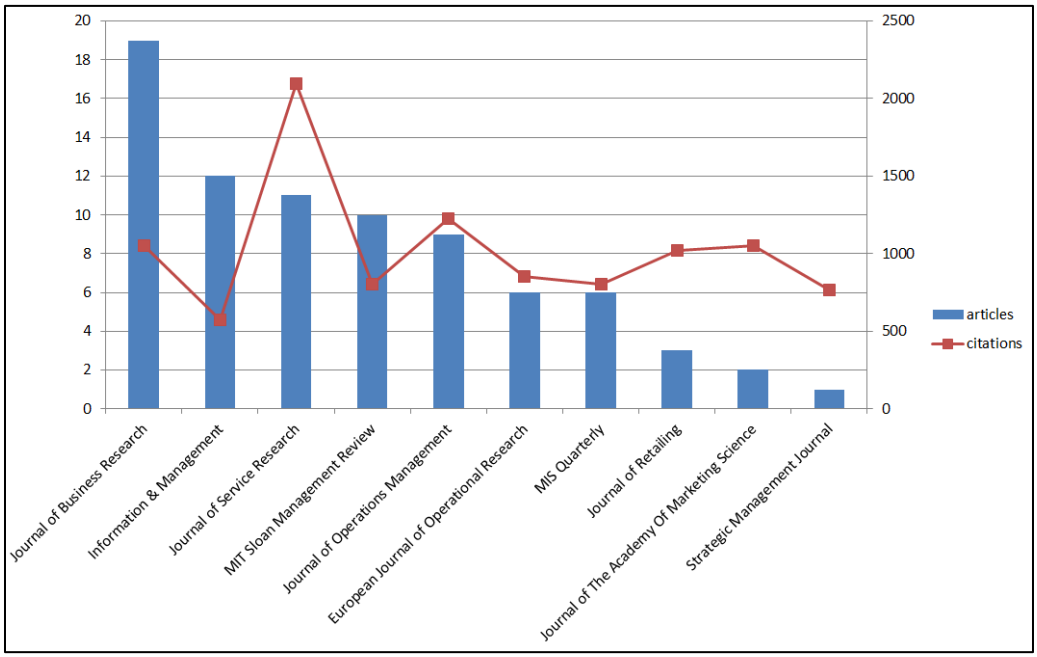
Phase III - From 2015 until 2018. A strong growth starts in 2015, with an average rate of publications doubling from approximately 25/30 up to 60 per year. Citations continue to grow from 1500 in 2015, up to close to 2500 in 2018.

Phase IV - From 2019, including 2019 and 2020. During those two years, the number of articles increases sharply yet again, almost doubling from an average of approximately 60 articles / year to over 100 articles per year. The number of citations also shows a peak of interest as it follows closely the surge in publications and in 2020, there were over 3500 citations made.

3.2. Major contributing research institutions based on bibliometric coupling (source level)

Running a bibliometric analysis on the source level allows us to identify the most productive and influential journals within our corpus of 847 articles (see Figure 2).

Figure 2. Top 10 most contributing academic journals

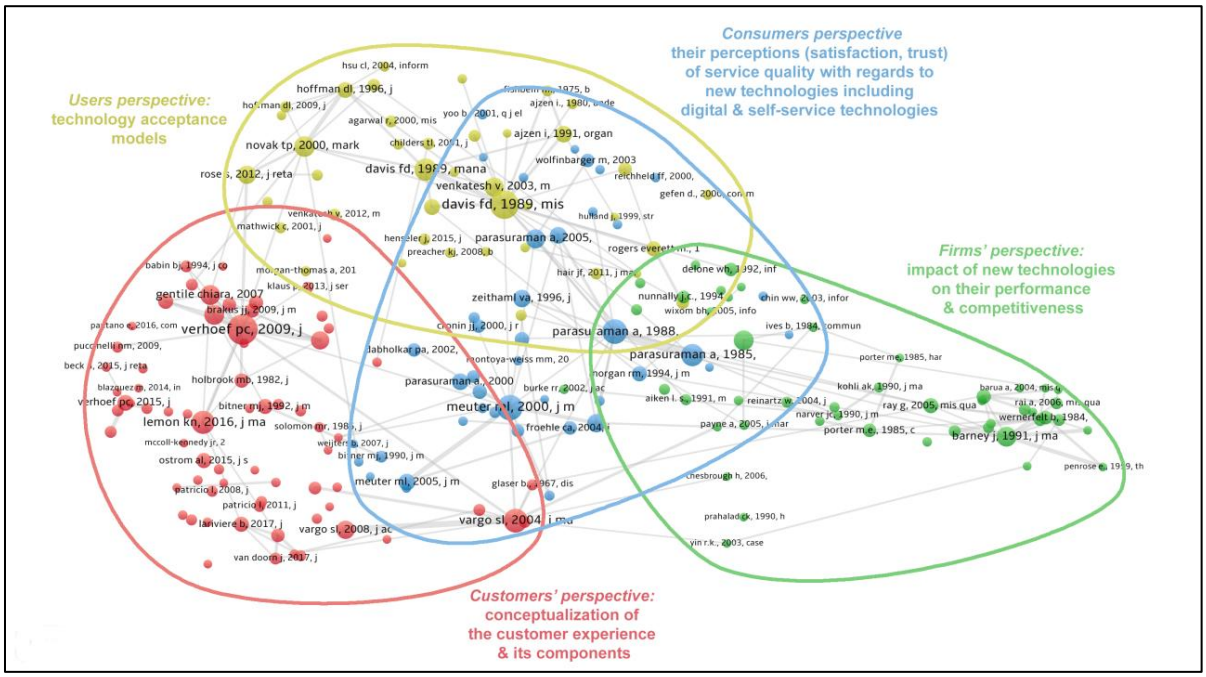


Overall the Journal of Business Research is the most productive (2.2% of all publications), while the Journal of Service Research is by far the most influential (8.2% of all citations). Interestingly, the Journal of Retailing, the Journal of the Academy of Marketing Science and the Strategic Management Journal have not authored many publications (respectively 3, 2 and 1), but these have been very influential as they account for 11.1% of all citations (respectively 4%, 4.1% and 3%). It is also possible to run a similar analysis on Phase 4 publications only, as a result showing some interesting differences: the Journal of Business Research appears as an even stronger front runner with 4.3% of the publications and as many as 13.6% of the citations. It is followed by the Journal of Retailing and Consumer Services with 5.1% of the publications and 6.9% of the citations. Another interesting result is regarding the Journal of Travel and Tourism Marketing as it has published 3 publications (1.3%) comprising as many as 8.4% of all the citations.

3.3. Intellectual structure based on co-citation analysis (publication level)

For this next analysis, we take into consideration all the references cited by our corpus, corresponding to a total of 35,658 references. Following a similar method as other bibliometric analyses, we focus on the most cited references, considering that the more a study is cited, the greater its influence (Samiee and Chabowski, 2012; p. 369). In this case, we select all the references that were cited at least 10 times, representing a total of 203 references. Running this analysis with VOSViewer, four different clusters have been identified (see Figure 3).

Figure 3. Intellectual structure of our stream of literature



The red cluster: Conceptualization of customer experience and its components. This cluster contains seminal publications related to customer experience (Gentile, Spiller, & Noci, 2007; Lemon & Verhoef, 2016; Meyer & Schwager, 2007; Verhoef, Kannan, & Inman, 2015; Verhoef et al., 2009) and, more generally, the experience paradigm (Pine & Gilmore, 1998).

The green cluster: Impact of new technologies on firms' performance and competitiveness. While the red cluster is focused on the customer, the cluster is rather focused on the firm's perspective. It includes several publications that study and discuss firms' internal resources in the context of new information systems and technology implementations, as well as the impact on their performance (Barney, 1991; Ray, Muhanna, & Barney, 2005) and, competitiveness (Porter & Millar, 1985). Moreover, several studies leverage the resource-based perspective (Bharadwaj, 2000).

The blue cluster: Consumers' perceptions of service quality. This cluster includes several seminal articles dedicated to service quality assessment and measurement (Parasuraman, Zeithaml, & Berry, 1985). It also includes articles related to consumers' perceptions in a service context that involves new technologies (Parasuraman, 2000), in particular in an online (Parasuraman, Zeithaml, & Malhotra, 2005) or a self-service context (Meuter, Ostrom, Roundtree, & Bitner, 2000), as well as the impact on perceived service quality, satisfaction or trust.

The yellow cluster: Users' technology acceptance. This cluster is focused on users' technology acceptance, mainly leveraging the technology acceptance model (Davis, Bagozzi, & Warshaw, 1989). It also includes articles on users behavior (Ajzen, 1991) and their antecedents, in particular, in the context of online environments (Delone & McLean, 2003).

Upon completing the co-citation analysis, we also noticed many quantitative references for structural equation modeling (Anderson & Gerbing, 1988; Fornell & Larcker, 1981), multivariate data analysis (Hair, 1984), PLS-SEM (Hair, Ringle, & Sarstedt, 2011) and measurement scales (Churchill Jr, 1979). Conversely, we found only a few references to qualitative methods, the most cited one being related to case studies (Eisenhardt, 1989). Indeed, out of our entire corpus, only 35 articles are based on either qualitative or mixed findings, representing less than 5% of all the 847 articles. We identify this gap as an opportunity to contribute to the current literature by proposing more qualitative studies as well as diversifying the types of methodologies used, including for example the latest video and photographic technology trends since images can be used both as sources of data as well as tools in the data collection process. Moreover, the number of netnographic studies is surprisingly low (only four), even though new online environments and the induced digital interactions have been identified as being a major shift for the customer experience . Finally, the latest growth of eye-tracking systems enable the recording of consumers' eye movements also representing a great avenue to gain finer grained knowledge.

3.4. Major themes' longitudinal evolution based on co-occurrence analysis (keyword level)

Keywords are those cited by the authors of each of the 846 articles constituting our corpus. This analysis was performed for each of the four different Phases identified previously, in order to get a sense of the keywords' longitudinal evolution (see Table 1). As such, by analyzing each phase separately, it is possible to assess the trend of researchers' interests, and find whether it is stable (→), trending upward (↑) or, conversely, trending downward (↓).

Table 1. Longitudinal keywords trends

Rank	Keyword	Phase I	Phase II	Phase III	Phase IV	TOTAL
1	supply chain →	6	16	19	13	54
2	innovation ↑	1	5	15	22	43
3	satisfaction →	1	11	10	12	34
4	retail →	-	7	14	11	32
5	service / experience quality →	2	9	9	8	28
6	artificial intelligence ↑	-	1	4	21	26
6	social media ↑	-	2	16	8	26
7	e-commerce →	1	8	8	8	25
8	internet ↓	3	13	5	1	22
8	self-service →	-	7	10	5	22
8	competitiveness →	1	8	4	9	22
8	strategy →	-	10	6	6	22
9	technology acceptance →	-	7	3	6	16
9	loyalty ↑	-	2	8	6	16
9	call centres ↓	1	10	4	1	16
10	co-creation ↑	-	2	5	8	15
10	trust →	-	8	3	4	15
10	service design ↓	1	2	10	2	15
11	big data ↑	-	-	4	10	14
12	brand ↑	-	1	6	6	13
13	resource-based view ↓	-	8	4	-	12
13	internet of things ↑	-	-	2	10	12
14	chatbot ↑	-	-	-	11	11
15	blockchain ↑	-	-	1	8	9

3.5. Most important topics based on co-occurrence analysis (term level)

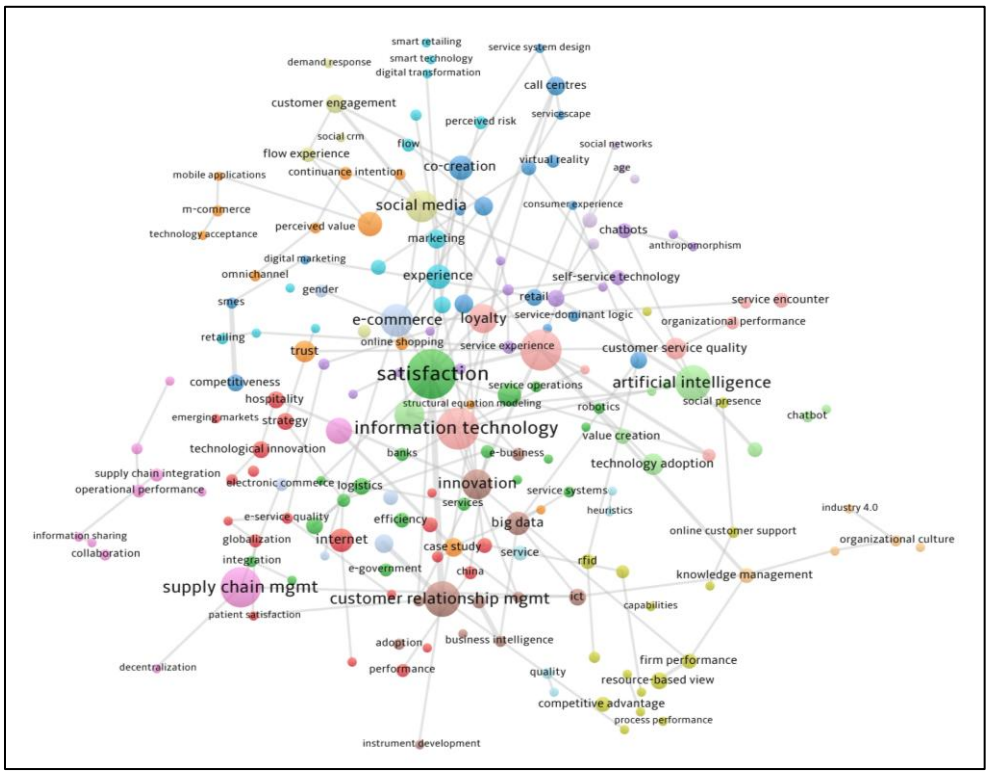
We then performed another co-occurrence analysis, this time on all the terms used throughout the titles and abstracts of our entire corpus (see Figure 4). This second co-occurrence analysis is complementary to the keywords' analysis because it is based on more terms and can provide more in-depth insights. Satisfaction appears clearly to be central and at the core of our literature review (see Figure 4).

4. Conclusion: Limits & contributions

To conclude, bibliometric analysis makes it possible to identify major contributing actors within a specific stream of the literature. Moreover, bibliometrics is also useful to understand the evolution of particular chronological trends. This illustrates the strength of bibliometry, as this method allows to perform analyses on the *macro* level (e. g. at the journal level), the *meso* level (e. g. at the article level) and the *micro* level (e. g. at the keyword or term level).
However, only papers indexed by the databases (Web of Science in our case) will be included

in the bibliometric analysis, and because these databases are privately owned, this raises questions about researchers' autonomy and independence from private interests.

Figure 4. Most important topics studied throughout the literature



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