

Chapter 25

The Contribution of Data Science Applied to Customer Relationship Management: A Systematic Literature Review

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ABSTRACT

In the face the contemporary world lives, and the consequent data produced at an unprecedented speed through digital media platforms, the data are nowadays called the new global currency. It raises numerous opportunities to improve outcomes in businesses, namely at the level of customer relationship management (CRM) strategies and their systems. Nevertheless, how analytics can be applied and support the customer relationship processes seems unclear for academics and industries. To better connect customer relationship processes needs and what data science analytics can offer, this chapter presents a systematic literature review around the concepts, tools, and techniques behind this field, looking particularly on customer acquisition and customer retention in businesses. The outcomes highlight that academic researcher works in this field are very scarce and recent. Searching the Scopus and Web of Science databases resulted in only 12 documents from 2013 to 2020, eight of them published in the last two years.

INTRODUCTION

In face the contemporary world lives, and the consequent data produced at an unprecedented speed through digital media platforms, the data are nowadays called the new global currency. It rises numerous opportunities to improve outcomes in businesses, namely at level of competitive advantages and support of decision-making processes (X. Wang, Nguyen, & Nguyen, 2020; C. H. Wang & Lien, 2019; Waller & Fawcett, 2013). Customer relationship management (CRM) is an emergent business and marketing strategy that aims to create and maintain profitable customer relationships by designing and delivering

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superior value propositions. It is based on high-quality customer-related data and leveraged by digital information and communication technology (Buttle & Maklan, 2019; Laudon & Laudon, 2020). Data science. When customer relationship management (CRM) intersects with data science, uncountable opportunities for business emerge. Data science and big data, more specifically network analysis, social media, sentiment analysis, text mining, and information diffusion are application focus of analytics, also, on marketing and business (Camacho et al., 2020). In summary sense, data science can be defined as a multi-disciplinary field that uses scientific methods, techniques, and algorithms, to extract useful knowledge from structured and unstructured data. Big data refers to the use of different methods and techniques to analyze, and systematically extract information from data sets that are too large, or complex, to be dealt with traditional data-processing algorithms. Nevertheless, how analytics can be applied to customer relationship processes is still unclear as the scarce academic publications (De Caigny et al., 2020; Yue, 2020; Sung, Zhang, Higgins, & Choe, 2016) and known industry cases proved. These few developments concerning the state of the art focused on cited concepts is inconsistent with the remarkable advances in artificial intelligence and internet of things in the last decade. To better connect customer relationship processes needs and what data science analytics can offer, this chapter presents a systematic literature review around the concepts, tools and techniques behind the increasing field of data science applied to CRM processes, looking particularly on customer acquisition and customer retention in businesses (X. Wang, Nguyen, & Nguyen, 2020; Iwashita, 2019; C. H. Wang & Lien, 2019; Semrl & Matei, 2017).

The present chapter aims to analyze the literature published in main academic databases - Scopus (by Elsevier) and Web of Science (by Clarivate), under the umbrella of “data science” and “customer relationship management” key terms. The main goal is to fill the gap looking to the published scientific works and identifying tendencies to anticipate the future. The results present an overview of the most relevant themes exploited, their applications, the followed methodologies, removing the veil to other areas to explore.

The chapter is organized as follows: after this introduction the report of the methodologic process of the systematic literature review was performed, presenting the flowchart of the main phases and its steps. Then the results by each phase (input, processing, and output) are reported. The output concerns descriptive and thematic analyses. Finally, the future research directions and a conclusion of the study are highlighted.

METHODOLOGY

One way to achieve greater rigor and better levels of reliability in a literature review is to adopt a systematic approach. In the beginning of the present century, Tranfield and colleagues (2003) proposed that systematic literature reviews should be used to develop decision-making evidence to overcome unsystematic processes of literature review and to identify key areas to research. Afterwards, Brereton and colleagues (2007) added that a systematic literature review allows the researcher to make a rigorous and reliable assessment of the research carried out within a specific topic. It is an instrument to map works published on the specific research topic so that the researcher is able to elaborate a synthesis of the existing knowledge on the subject (Levy & Ellis, 2006). The result must be the “state of the art” and demonstrate that the research in question contributes with something new to the existing body of knowledge. Supported mainly in works of Tranfield, Denyer, and Smart (2003) and Levy and Ellis (2006), but also of Moher, Liberati, and Tetzlaff (2015) and Sampiao and Mancini (2007), the methodological

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