

Chapter 3

A Systematic Bibliometric Literature Review on Data Science in Marketing

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ABSTRACT

Data science in marketing has become critical in gaining sustained competitive advantage in a rapidly changing business environment. It involves using advanced analytics and scientific principles to extract valuable information from large volumes of data gathered from multiple sources, such as social media platforms. There are multiple benefits to using data science in marketing, including proper data-based planning, enhanced customization, enhanced forecasting through predictive analytics, effective ROI measuring, and improved pricing models. The research explains how companies can turn the potential and opportunities of these advanced analytics techniques into real company performance in a competitive marketing environment. This research aims to explore how firms can use marketing analytics and big data to improve capabilities and performance. Specifically, the study argues that big data and marketing analytics can be used to extract valuable and meaningful marketing information and insights that can be integrated to improve marketing effectiveness and performance.

INTRODUCTION

In this digital era, there is a significant demand for tools and techniques to process

DOI: 10.4018/978-1-6684-6786-2.ch003

and analyze large volumes of data. For instance, research estimates that 6 billion consumer devices are connected to the internet, generating approximately 2.5 million terabytes of data daily (Rosário et al., 2021). The rapidly increasing generation and consumption of data worldwide reflects the prominence of the data science discipline and its potential to influence business operations and decisions. Data science is the field of study concerned with processing large data volumes using modern tools and techniques such as scientific methods, processes, algorithms, and systems (Jordan & Mitchell, 2015). These tools identify unseen patterns and extract meaningful information that supports business decision-making. Saura (2021) describes data science as a broad ecosystem consisting of multiple pattern identification strategies, statistical variables, analysis models, performance indicators, and technical skills and expertise. As a result, data science combines specialized programming, advanced analytics, artificial intelligence (AI), and machine learning to uncover hidden insights in an organization's data, thus leading to better decision-making, planning, and executing strategies.

Data science can be applied in marketing to improve the effectiveness of campaigns and strategies by enhancing organizational management of user information. In addition, data science allows marketers to leverage new data analysis and innovative techniques to create knowledge and determine the type and source of data in a company's datasets for appropriate usage (Saura, 2021). Given the competitive pressures in the current business environment, the complexity and interlinking of supply chains, and challenges in maintaining customer loyalty, the need for data-driven marketing strategies and decisions have significantly increased in recent years (Jung & Jeong, 2020). More companies are leveraging data science to develop and understand customer choice modeling and consumer behavior, preferences, and lifetime value (Rosário et al., 2021). In addition, the innovation is hugely used for brand valuation and response modeling. Thus, data science in marketing is associated with multiple benefits, including empowering the management and staff to make data-based decisions, identifying opportunities, enhancing customer targeting practices, and providing tools and techniques for calculating the return on investment (ROI) of a marketing campaign (Chintagunta et al., 2016). This study aims to conduct a systematic bibliometric literature review to explore how companies can integrate data science into marketing, specifically big data and marketing analytics, to improve capability and performance. The research argues that leveraging big data and marketing analytics can help extract valuable and meaningful marketing information and insights that can be incorporated to improve marketing effectiveness and performance.

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