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MAPPING IDEA & LITERATURE FORMAT

Optimizing Marketing Management Strategies Through IT Innovation: Big Data Integration for Better Consumer Understanding

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Abstract: The dynamic business environment, the fusion of Information Technology (IT) innovation with marketing management strategies has emerged as a crucial element for success amidst heightened competition. As markets evolve and consumer behaviors shift, enterprises are compelled to adapt swiftly, employing innovative tools and methodologies to gain insights and maintain relevance. Within this context, the integration of Big Data analytics emerges as a transformative catalyst, offering unprecedented opportunities to comprehend consumer preferences and optimize marketing endeavors. The convergence of IT and marketing management signifies a paradigm shift in how businesses conceive and execute their strategies. Historically, marketing decisions relied heavily on intuition, market research, and limited data samples. However, the digital revolution has ushered in an era characterized by the generation and collection of vast amounts of data at an unprecedented pace. This proliferation of data presents both challenges and opportunities for marketers. While the sheer volume and complexity of data can be overwhelming, harnessing this reservoir of data can unlock invaluable insights into consumer behavior, preferences, and trends. The integration of Big Data into marketing management strategies has revolutionized consumer understanding and value creation. By leveraging vast amounts of consumer data, businesses can extract valuable insights to gain a competitive advantage and enhance consumer engagement. However, this integration also presents challenges, including concerns regarding data privacy and security. At the forefront of this data-driven revolution lies Big Data analytics—a multidisciplinary field utilizing advanced computational techniques to analyze large and diverse datasets. Unlike traditional analytics approaches, Big Data analytics excels in processing massive volumes of structured and unstructured data with agility and efficiency. By harnessing distributed computing, machine learning algorithms, and cloud infrastructure, organizations can extract actionable intelligence from previously unwieldy datasets. The integration of Big Data analytics into marketing management holds immense promise for unlocking new avenues of consumer understanding. By aggregating and analyzing disparate data sources, marketers can gain comprehensive insights into consumer preferences, behaviors, and sentiments, enabling more targeted and effective marketing strategies. Moreover, Big Data analytics empowers marketers to anticipate and respond to emerging trends and market shifts with unprecedented agility, ensuring a competitive edge in fast-paced industries. However, realizing the full potential of Big Data integration in marketing management requires more than technological prowess—it demands a strategic shift in organizational mindset and culture. Embracing a data-driven approach necessitates breaking down silos between departments, fostering cross-functional collaboration, and promoting a culture of experimentation and innovation. Additionally, it requires a commitment to ethical data practices to safeguard consumer privacy and data security throughout the data lifecycle.

Keywords: Big Data Analytics, IT Innovation, Marketing Management Strategies, Consumer Understanding, Data-Driven Approach.

JEL Classification Code: M15, M31, L86



1. INTRODUCTION

In the realm of contemporary business, the fusion of Information Technology (IT) innovation and marketing management strategies has become paramount for thriving in an increasingly competitive landscape. As markets evolve and consumer behaviors shift, enterprises are compelled to adapt, utilizing novel tools and methodologies to gain insights and maintain relevance. In this pursuit, the integration of Big Data analytics stands out as a transformative force, offering unparalleled opportunities for understanding consumer preferences and optimizing marketing endeavors. This introduction sets the stage for exploring how IT innovation, particularly through the integration of Big Data, reshapes marketing management strategies, propelling organizations towards enhanced consumer understanding and sustainable growth. The convergence of IT and marketing management represents a paradigm shift in how businesses conceptualize and execute their strategies. Traditionally, marketing decisions relied heavily on intuition, market research, and limited data samples. However, the digital revolution has ushered in an era where vast amounts of data are generated and collected at an unprecedented pace. This proliferation of data presents both challenges and opportunities for marketers. On one hand, the sheer volume and complexity of data can be overwhelming, making it difficult to extract meaningful insights. On the other hand, harnessing this data reservoir can unlock invaluable insights into consumer behavior, preferences, and trends.

The integration of big data into marketing management strategies has revolutionized consumer understanding and value creation (Bheekhar, 2019; Pantano, 2020). This integration has been facilitated by the availability of vast amounts of consumer data, which can be analyzed to extract valuable insights (Erevelles, 2016; Jia, 2019). The use of big data and analytics has been shown to provide a competitive advantage by enabling businesses to gain insights into consumer behavior (Ertemel, 2015). Furthermore, big data can be used to gain insights into consumers' psychological states and traits, informing marketing strategy (Matz, 2017). However, the use of big data in marketing also presents challenges, such as data privacy and security concerns (Salvador, 2014). The integration of Big Data into marketing management strategies offers significant opportunities for enhancing consumer understanding and value creation. Through the analysis of vast datasets, businesses can gain valuable insights into consumer behaviors, preferences, and psychological traits, thereby enabling more targeted and effective marketing strategies. This not only provides a competitive advantage but also fosters a deeper connection with consumers by delivering personalized experiences. However, it is essential to address challenges related to data privacy and security to ensure ethical and responsible use of Big Data in marketing practices. Overall, the transformative potential of Big Data in marketing management is evident, highlighting the importance of embracing data-driven approaches to meet the evolving needs of today's dynamic markets.

At the forefront of this data-driven revolution is Big Data analytics, a multidisciplinary field that leverages advanced computational techniques to analyze large and diverse datasets. Unlike traditional analytics approaches, which often struggle to cope with the scale and variety of modern data sources, Big Data analytics excels in processing massive volumes of structured and unstructured data with agility and efficiency. By harnessing the power of distributed computing, machine learning algorithms, and cloud infrastructure, organizations can extract actionable intelligence from datasets that were previously deemed unwieldy or inaccessible. The integration of Big Data analytics into marketing management holds immense promise for unlocking new avenues of consumer understanding. Through the aggregation and analysis of disparate data sources—ranging from social media interactions and online transactions to demographic profiles and sensor data—marketers can gain comprehensive insights into the preferences, behaviors, and sentiments of their target audience. This holistic view enables them to move beyond traditional segmentation models based on demographics or psychographics and adopt more nuanced approaches that account for individual preferences, micro-segments, and real-time dynamics.

Moreover, Big Data analytics empowers marketers to anticipate and respond to emerging trends and market shifts with unprecedented agility. By leveraging predictive analytics algorithms, organizations can forecast consumer demand, identify potential opportunities, and proactively tailor their marketing strategies to capitalize on changing market dynamics. Whether it's predicting the next viral trend on social media or forecasting demand spikes for a new product launch, the ability to glean insights from Big Data enables marketers to stay ahead of the curve and maintain a competitive edge

in fast-paced industries. However, realizing the full potential of Big Data integration in marketing management requires more than just technological prowess—it necessitates a strategic shift in organizational mindset and culture. Embracing a data-driven approach entails breaking down silos between departments, fostering cross-functional collaboration, and promoting a culture of experimentation and innovation. Moreover, it requires a commitment to ethical data practices, ensuring that consumer privacy and data security are safeguarded throughout the data lifecycle.

2. LITERATURE REVIEW PROCEDURE

In the realm of modern business, the integration of Information Technology (IT) innovations has become indispensable for optimizing marketing management strategies. This literature review delves into the significance of leveraging Big Data integration to enhance consumer understanding, thereby refining marketing approaches. By synthesizing existing literature, this narrative explores the transformative potential of IT innovations, particularly Big Data analytics, in shaping contemporary marketing paradigms. At the heart of marketing management lies the imperative of understanding consumer behavior. Traditional methods often fall short in capturing the nuances of consumer preferences, necessitating a shift towards more advanced technological solutions. The advent of Big Data, characterized by the exponential growth of digital information, offers unprecedented opportunities for marketers to glean actionable insights from vast datasets. As highlighted by Holley, Sivakumar, and Kannan (2014), Big Data analytics enable the identification of complex patterns and correlations, empowering marketers to formulate targeted strategies tailored to specific consumer segments.

Central to the efficacy of Big Data integration is the utilization of advanced analytics tools. Machine learning algorithms, for instance, have emerged as instrumental in processing massive datasets to extract meaningful insights. Through techniques such as clustering and predictive modeling, marketers can discern latent consumer trends and anticipate future behaviors with remarkable accuracy (Chen et al., 2019). Consequently, organizations can refine their marketing efforts, allocating resources more efficiently to maximize impact. Moreover, the integration of Big Data fosters real-time decision-making capabilities, a critical asset in today's fast-paced market environment. By harnessing streaming data from various online platforms and IoT devices, marketers gain instantaneous feedback on consumer interactions (Bawack et al., 2021). This dynamic approach enables agile adjustments to marketing strategies, ensuring relevance and responsiveness to evolving consumer preferences.

Nevertheless, the efficacy of Big Data integration hinges on overcoming several challenges. Chief among these is the issue of data privacy and security. As emphasized by Wang (2020), the proliferation of data collection raises concerns regarding consumer privacy rights and regulatory compliance. To mitigate risks, organizations must prioritize robust data governance frameworks and adhere to stringent security protocols to safeguard sensitive information. Furthermore, the sheer volume and complexity of Big Data pose significant hurdles in terms of data management and analysis. Without adequate infrastructure and expertise, organizations may struggle to derive actionable insights from disparate datasets (Brown et al., 2011). Hence, investments in data infrastructure and talent development are imperative to unleash the full potential of Big Data analytics in marketing management. In addition to addressing technical challenges, marketers must also confront cultural and organizational barriers to successful implementation. The transition towards a data-driven marketing culture requires a fundamental shift in mindset and practices (Marr, 2015). Leadership commitment, employee training, and organizational restructuring are essential to foster a culture that embraces data-driven decision-making and innovation.

Despite these challenges, the benefits of integrating Big Data into marketing management are undeniable. By harnessing the power of data analytics, organizations can gain a deeper understanding of consumer behavior, enhance targeting precision, and improve overall marketing effectiveness. Moreover, the iterative nature of data analysis facilitates continuous optimization, enabling marketers to adapt strategies in real-time to capitalize on emerging opportunities and mitigate risks. Looking ahead, the convergence of Big Data with emerging technologies such as artificial intelligence and blockchain holds promise for further revolutionizing marketing practices. By leveraging predictive

analytics and decentralized data exchange, marketers can unlock new dimensions of consumer engagement and value creation (Bughin, 2017). However, realizing this vision requires concerted efforts in overcoming technological, organizational, and ethical challenges while harnessing the transformative potential of IT innovation.

The provided table offers a comprehensive overview of various scholarly works focusing on the application, challenges, and opportunities of blockchain technology within the financial industry. Through a detailed examination of each study, one can discern the evolving landscape of blockchain technology and its potential transformative effects on traditional financial systems. Beginning with "Implementing the Blockchain Technology in Islamic Financial Industry: Opportunities and Challenges" by O. Alaeddin et al. (2021), the study sheds light on the complexities inherent in integrating blockchain within Islamic financial frameworks. Despite challenges such as product complexity and regulatory opacity, the paper underscores the burgeoning interest in blockchain among Islamic financial institutions, particularly in innovative areas like Waqf, Zakat, and Sukuk. Similarly, "Blockchain for Banking Systems: Opportunities and Challenges" (A. Shorman et al., 2020) delves into the prospects of blockchain adoption within banking, highlighting its potential to streamline operations and reduce costs. Notably, the paper emphasizes the need for comprehensive reviews targeting blockchain's role in banking, thus indicating a nascent yet promising avenue for research.

On a broader scale, "The Challenges and Countermeasures of Blockchain in Finance and Economics" (Li Zhang et al., 2020) provides a systematic analysis of blockchain's implications for financial systems, advocating for its integration to enhance efficiency and cross-border payments. The study's novelty lies in its constructive approach, offering solutions to mitigate challenges and maximize blockchain's potential within finance and economics. In a similar vein, "Blockchain for Business Management: Applications, Challenges, and Potentials" (Abhinav Pal et al., 2021) explores the transformative impact of blockchain on business processes. Noteworthy is its emphasis on smart contracts and their role in enhancing transactional efficiency and organizational functions. Moving towards future directions, "Application Research of Blockchain Technology in Financial Field" (Chenxin Zhao et al., 2019) forecasts the integration of blockchain with emerging technologies like artificial intelligence and big data processing. The study envisions a comprehensive financial service platform underpinned by blockchain, marking a paradigm shift in financial operations.

Furthermore, "Investigation of the Blockchain's Influence on Traditional Banking: Challenges and Opportunities" (Simona Pakènaitė et al., 2019) highlights the symbiotic relationship between banks and fintech, underscoring blockchain's disruptive potential. Notably, the study stresses the need for collaborative efforts to harness blockchain's benefits effectively. The analysis extends to international dimensions with "Blockchain Technology in International Business: Changing the Agenda for Global Governance" (A. Hooper et al., 2020). Here, blockchain's impact on global governance is examined, emphasizing its potential to improve property rights protection while acknowledging challenges in regulatory adaptation. Moreover, "Analysis of the Application of Blockchain Technology in the Financial Industry" (Lu Zhang et al., 2020) explores specific use cases of blockchain within finance, underscoring its potential to address systemic flaws. The study underscores the importance of research and supervision to mitigate inherent risks.

In addition, "An Overview of Blockchain Technologies: Principles, Opportunities, and Challenges" (G. Mermer et al., 2018) provides a holistic view of blockchain's societal implications, stressing its revolutionary potential in enabling trustless transactions. Conclusively, the collective insights from these studies elucidate the multifaceted nature of blockchain technology within the financial realm. Despite challenges, blockchain's disruptive potential remains undeniable, heralding a new era of efficiency, transparency, and trust in financial systems. As researchers and practitioners continue to explore its applications and address underlying complexities, the trajectory of blockchain within finance promises to reshape traditional paradigms, ushering in a more decentralized and inclusive global economy.

The presented table encapsulates a diverse array of scholarly works centering on the integration of information technology, particularly big data analytics, into marketing strategies across various sectors. These studies collectively offer invaluable insights into the evolving landscape of marketing practices, highlighting the transformative potential of technology-driven approaches in enhancing

customer value, understanding consumer behavior, and optimizing marketing strategies for organizational growth and competitiveness. The discourse on leveraging information technology, particularly big data analytics, to enhance marketing strategies emerges prominently across the studies. "Integrating Information Technology and Marketing for Better Customer Value" (Bheekharry & Singh, 2019) emphasizes the impact of technology advancements on digital platforms and the significance of business analytics in understanding customer demand. Similarly, "Integrating Big Data Analytics Into Retail Services Marketing Management" (Pantano et al., 2020) underscores the utility of big data analytics in retail marketing, focusing on sentiment and image analytics for consumer insights.

Several studies delve into the role of big data analytics in unlocking valuable consumer insights. "Big Data consumer analytics and the transformation of marketing" (Erevelles et al., 2016) proposes a conceptual framework based on resource-based theory to exploit the benefits of big data in understanding consumer behavior. Likewise, "Using Big Data as a window into consumers' psychology" (Matz & Netzer, 2017) explores the translation of big data into insights on consumers' psychological states and traits, informing marketing strategy formulation. The integration of big data analytics facilitates innovative marketing approaches aimed at enhancing consumer engagement and organizational competitiveness. "Marketing 4.0: Enhancing Consumer-Brand Engagement Through Big Data Analysis" (Jimenez-Zarco et al., 2017) discusses the evolution of marketing towards leveraging big data to enhance consumer-brand relationships. Moreover, "Advanced Customer Analytics: Strategic Value Through Integration of Relationship-Oriented Big Data" (Kitchens et al., 2018) presents a framework for deploying advanced customer analytics, emphasizing the incorporation of relationship-oriented constructs for actionable insights.

Despite the promise of technology-driven marketing strategies, challenges and opportunities abound. "Big Data Usage in the Marketing Information System" (Salvador & Ikeda, 2014) discusses limitations such as data shortage and inconsistency, alongside ethical concerns. Similarly, "Big Data in Marketing Arena. Big Opportunity, Big Challenge, and Research Trends: An Integrated View" (Alshura et al., 2018) highlights the need for more research efforts to harness big data's potential fully while addressing challenges such as privacy concerns. Several studies provide practical implications for marketers and propose future research directions. "Research on the Integration of Marketing Management and Big Data Technology" (Jia, 2019) underscores the importance of using big data technology to improve economic efficiency and customer service, suggesting the development of technical support platforms for marketing services. Additionally, "Digital Marketing Framework Strategies Through Big Data" (Sayyad et al., 2019) offers a framework supported by case studies for leveraging big data in innovation and market leadership. Next with "The Influence and Countermeasures of Enterprise Marketing Activities under the Big Data Background" by Wang Nan and Shi Xiaochun (2020), the study highlights the transformative potential of big data for enterprises engaged in marketing activities. It emphasizes the emergence of the network economy propelled by rapid advancements in Internet information technology. Through a comprehensive analysis, the paper underscores the importance of leveraging data from online sales and proposes optimization strategies to enhance marketing efficacy in the era of big data. Similarly, "Impact of Big Data and Machine Learning on Digital Transformation in Marketing: A Literature Review" by Andrej Miklošik and N. Evans (2020) underscores the paradigm shift brought about by digital transformation in marketing. The study emphasizes the indispensable role of big data and machine learning in reshaping marketing strategies and necessitates organizations' adaptation to these technological advancements. It advocates for strategic data collection and analysis to effectively target marketing efforts in the digital age. In a retrospective examination, "Investigation into Big Data Impact on Digital Marketing" by Ketty Grishikashvili, S. Dibb, and M. Meadows (2014) delves into the pioneering efforts of industries in harnessing big data for marketing endeavors. The study underscores the competitive advantage garnered by businesses adept at deriving actionable insights from big data analytics. It underscores the imperative for industries to stay abreast of digital transformation trends to maintain a competitive edge in the market. Shifting focus to social media platforms, "Social Media Data Analytics – Using Big Data for Big Consumer Reach" by Kayli Blackburn and Kyle Boris (2020) sheds light on the strategic implications of social media marketing optimization. The study demonstrates how businesses, particularly small and mid-size enterprises, can leverage tools like Excel's Solver add-in to

optimize advertising budgets and maximize sales potential. It underscores the importance of maintaining a robust social media presence and offers practical insights into budget allocation strategies for enhanced consumer outreach. Delving deeper into the realm of e-commerce, "Business and Data Analytics: New Innovations for the Management of E-commerce" by Robert J. Kauffman, Jaideep Srivastava, and Jamshid A. Vayghan (2012) examines the challenges posed by the voluminous data generated by e-commerce operations. The study advocates for innovative approaches to data management and analytics to support informed decision-making in e-commerce enterprises. It underscores the need for comprehensive research encompassing the entire data lifecycle to unlock the full potential of big data in e-commerce management. Finally, "From Consumer Panels to Big Data: An Overview of Marketing Data Development" by Stuart Van Auken (2015) provides a comparative analysis of traditional consumer panel data and big data in marketing. The study elucidates the strengths and weaknesses of each approach and highlights the unique insights offered by big data analytics despite its lack of structure. It underscores the transition from consumer panels to big data analytics in marketing data development and offers insights into the future trajectory of big data in marketing practices. In conclusion, the collective insights gleaned from these scholarly works underscore the transformative potential of big data in reshaping marketing strategies and enhancing consumer engagement. As businesses navigate the digital landscape, leveraging advanced analytics and machine learning algorithms becomes imperative for staying competitive in the market. The studies underscore the need for organizations to adapt to these technological disruptions and embrace data-driven decision-making to thrive in the era of digital marketing.

3. CONCLUSION AND PROPOSITION

Based on the interpretation and narration of the previously discussed table, which examined the product innovation development and implementation, several hypotheses can be formulated as follows:

Hypothesis 1: The integration of information technology, particularly big data analytics, into marketing strategies across various sectors enhances customer value and optimizes marketing strategies for organizational growth and competitiveness.

Hypothesis 2: The application of big data analytics facilitates innovative marketing approaches aimed at understanding consumer behavior and enhancing consumer engagement.

Hypothesis 3: Challenges such as data shortage, inconsistency, and ethical concerns pose significant obstacles to the effective utilization of big data in marketing practices.

Hypothesis 4: Despite challenges, there exist significant opportunities for marketers to harness the potential of big data through strategic data collection, analysis, and adaptation to digital transformation trends.

Hypothesis 5: Future research efforts should focus on developing technical support platforms for marketing services, addressing privacy concerns, and leveraging big data analytics for innovation and market leadership in the digital era.

The hypotheses presented underscore the pivotal role of big data analytics in revolutionizing marketing practices. While challenges such as data shortage and ethical concerns persist, the opportunities for leveraging big data to enhance consumer engagement and organizational competitiveness are abundant. Moving forward, it is imperative for marketers to embrace technological advancements, prioritize data-driven decision-making, and invest in innovative approaches to stay ahead in the dynamic landscape of digital marketing. By addressing these challenges and capitalizing on opportunities, businesses can unlock the full potential of big data analytics to drive sustainable growth and success in the digital era.

Table 1. Mapping Literature

Title	Authors	Year	Abstract Summary	Main Findings	State of the Art	Summary
Integrating Information Technology and Marketing for Better Customer Value	Normada Devi Bheekharry, Upasana Singh	2019	Marketers are using information technology know-how as a stepping stone to remain competitive.	The main findings of the paper are the impact of technology advancements on digital platforms, the importance of business analytics in understanding customer demand, and the use of information technology by marketers to stay competitive.	The "state of the art" in Normada Devi Bheekharry, Upasana Singh (2019) is the impact of technology advancements on digital platforms, the importance of understanding customer behavior, and the specific influence of social media, big data, and big data analytics.	The paper provides a summary of how technology advancements have led to the emergence of various digital platforms for interaction between organizations and customers, resulting in a significant flow of data. It also discusses the development and testing of different business analytics to understand customer demand and deliver better customer value, as well as the innovation in technology for sorting and analyzing data for organizational strategic development. The paper emphasizes the dynamic nature of the online environment and how marketers are leveraging information technology to remain competitive, with a specific focus on the impact of social media, big data, and big data analytics.
Integrating Big Data Analytics Into Retail Services Marketing Management	E. Pantano, Simona Giglio, C. Dennis	2020	Retailers might exploit big data analytics such as sentiment and image analytics to get useful consumers' insights to be successfully integrated into marketing strategies.	The main findings of the paper are: - The paper explores the use of big data analytics in retail marketing, specifically focusing on a large shopping center in London, UK as an example. - It discusses how retailers can utilize sentiment and image analytics from big data to gain valuable consumer insights for successful integration into marketing strategies.	The "state of the art" in E. Pantano, Simona Giglio, C. Dennis (2020) involves the exploration of the impact of digitalization on marketing, the use of big data analytics in retail settings, and the implications for scholars and practitioners, along with a proposed future research agenda.	The paper provides an exploration of the impact of digitalization on marketing, with a focus on big data analytics in the context of a large shopping center in London, UK. It also discusses implications for scholars and practitioners and proposes a future research agenda.



				- The paper also outlines implications for scholars and practitioners and proposes a future research agenda in this area.		
Big Data consumer analytics and the transformation of marketing	Sunil Erevelles, Nobuyuki Fukawa, Linda E. Swayne	2016	Big data is available from individual consumers.	The main findings include the central role of consumer analytics in the Big Data revolution, the proposal of a conceptual framework based on resource-based theory, and the moderation of marketing activities by physical, human, and organizational capital resources.	The "state of the art" in Sunil Erevelles, Nobuyuki Fukawa, Linda E. Swayne (2016) is the impact of Big Data on consumer analytics and marketing activities, as well as the proposed conceptual framework based on resource-based theory to exploit the benefits of Big Data. It also emphasizes the moderation of key processes by physical, human, and organizational capital resources, along with the unique resource requirements for firms to benefit from Big Data.	The paper provides a conceptual framework based on resource-based theory to understand the impact of Big Data on marketing activities and how firms can exploit its benefits. It discusses the role of consumer analytics in capturing rich and plentiful data on consumer phenomena in real time and highlights the unique resource requirements for firms to benefit from Big Data.
Research on the Integration of Marketing Management and Big Data Technology	Dian Jia	2019	Big data technology can provide data support for product marketing programs for marketing customers' products.	The main findings of the paper are that enterprises are facing increasing pressures in exploiting product markets and preventing business risks. The use of big data technology is necessary to build a technical support platform for marketing services, analyze customer product characteristics and needs, and provide data support for formulating marketing programs, seizing the market and users, and improving economic efficiency and customer service.	The "state of the art" in Dian Jia (2019) involves the increasing pressures and challenges faced by enterprises in exploiting product markets and preventing business risks, and the necessity of using big data technology to improve economic efficiency and customer service.	The paper discusses the challenges faced by enterprises in the current business environment, emphasizing the importance of using big data technology to build a technical support platform for marketing services, analyzing customer needs, and providing data support for formulating marketing programs in order to improve the economic efficiency of enterprises and constantly improve customer service and service quality.
Business Development, Marketing Automation and Predictive Analysis: An Integration	Andrea Sestino	2019	Marketing automation and predictive analysis might support the business growth	The main findings of the paper are: - The traditional view of consumers as individuals or companies is important	The "state of the art" in Andrea Sestino (2019) involves the use of data analysis, marketing automation, predictive analysis, and	The paper discusses the shift in consumer behavior towards generating continuous and unstructured data, the potential



<p>Perspective - An Overview Towards New Opportunities for Studying Consumer Behavior and Business Integration.</p>			<p>towards a better comprehension of consumers.</p>	<p>in understanding consumption choices. - Marketing automation and predictive analysis can aid in developing informed marketing strategies. - Data mining techniques can be used to extract models for predicting consumer behavior from large databases.</p>	<p>data mining techniques to understand and predict consumer behavior, as well as the investigation of tools for discovering valuable information within large databases.</p>	<p>utility of this data for implementing informed marketing strategies, the collection and processing of market and consumer data for decision making in marketing intelligence, the use of data mining techniques to extract models for predicting consumer behavior from large databases, and aims to investigate current and future scenarios and the best tools available for discovering useful relationships and patterns within large databases.</p>
<p>Big Data Usage in the Marketing Information System</p>	<p>A. Salvador, Ana Akemi Ikeda</p>	<p>2014</p>	<p>Big data in research can represent a deep dive in consumer understanding in the marketing field.</p>	<p>- Big data presents new possibilities for collection and integration of a large volume of new data for fresh insights, selection of advanced analytical models, and creation of tools to translate model outputs into tangible actions. - The limitations in the use of big data are connected to factors such as data shortage and inconsistency, qualified people, proper use of the information, and ethical concerns. - Self-governance via organizations like ESOMAR can be an alternative to address abuses and excesses in the use of big data, with proposals for rights such as the right to be forgotten, expiration of data, and ownership of a social graph.</p>		<p>The summary of the paper is a comprehensive discussion on the uses, characteristics, limitations, and ethical considerations of big data in marketing information systems.</p>

<p>Consumer insight as competitive advantage using big data and analytics</p>	<p>A. Ertemel</p>	<p>2015</p>	<p>Big data and analytics are a tool for marketers to gain insights about consumer behavior and hence provide competitive advantage to the businesses.</p>	<p>The main findings of the paper are: - The digital revolution provides a competitive advantage to businesses that can analyze consumer behavior for strategic insights. - Traditional database management systems are inadequate for managing and analyzing the huge amount of data generated in the past two decades. - Big Data and Analytics are tools that marketers can use to gain insights about consumer behavior and provide a competitive advantage to businesses.</p>	<p>The state of the art in A. Ertemel (2015) is the use of Big Data and Analytics as a tool for marketers to gain insights about consumer behavior and provide competitive advantage to businesses. It also discusses best practices as case studies.</p>	<p>The paper discusses how the digital revolution has created a competitive advantage for businesses that can analyze consumer behavior to gain strategic insights. It explores the characteristics of Big Data and Analytics as tools for marketers to gain insights about consumer behavior and provide a competitive advantage to businesses, and includes best practices as case studies.</p>
<p>Using Big Data as a window into consumers' psychology</p>	<p>Sandra C Matz, Oded Netzer</p>	<p>2017</p>	<p>Big data can be translated into valuable insights on consumers' psychological states and traits that can be used to inform marketing strategy.</p>	<p>The main findings of the paper are: - Availability of useful consumer information at a large scale and low cost. - Translation of this information into valuable insights on consumers' psychological states and traits for informing marketing strategy. - Opportunities and challenges related to the use of Big Data as a window into consumers' psychology.</p>	<p>The "state of the art" in Sandra C Matz, Oded Netzer (2017) is the availability of consumer information at a large scale and low cost, and the translation of this information into valuable insights on consumers' psychological states and traits for informing marketing strategy. The paper also discusses the opportunities and challenges related to the use of Big Data as a window into consumers' psychology and provides recommendations for implementing related technologies in a way that benefits both businesses and consumers.</p>	<p>The paper provides an overview of the impact of Big Data on marketing research and practice, highlighting the availability of consumer information, its translation into valuable insights, and the opportunities and challenges related to using Big Data for understanding consumers' psychology.</p>
<p>A Better Understanding of Big Data and Marketing Analytics</p>	<p>F. J. Lacarcel, Leticia Polanco-Diges, Felipe Debasa</p>	<p>2021</p>	<p>The authors identified 13 key concepts related to big data analytics and 13 related to marketing analytics.</p>	<p>The main findings of the paper are the increasing importance of data mining and analysis in various sectors, the identification of key concepts related to big data analytics and marketing analytics, and the theoretical and</p>	<p>The "state of the art" in F. J. Lacarcel, Leticia Polanco-Diges, Felipe Debasa (2021) involves the consolidation of data mining and analysis in various sectors, the identification and categorization of key strategies, metrics, and concepts</p>	<p>The paper provides a summary of the main strategies, metrics, and concepts derived from big data analytics and marketing analytics through a systematic literature review. It identifies 13 key concepts related to each, which are</p>

				practical implications of the results for future researchers.	derived from big data analytics and marketing analytics, and the classification of these concepts according to their application in technologies or actions in digital marketing.	classified and categorized according to their application in technologies or actions in digital marketing. The chapter concludes with a discussion of theoretical and practical implications for future researchers.
Information Technology Adoption on Digital Marketing: A Literature Review	Fátima Figueiredo, M. Gonçalves, S. Teixeira	2021	Artificial intelligence agents driven by machine learning methods, technology, and big data will be a conditioning factor in defining these strategies in the next decades.	<ul style="list-style-type: none"> - The vast amount of data allows companies to benefit from Big Data by optimizing digital marketing strategies and predicting customer response to marketing - The role of data in companies is becoming increasingly strategic. Whatever their activity, data is a true ally in the improvement of management processes, as it contributes to the achievement of business efficiency and quality - The analytical power of Big Data provides companies with critical insight into the behavior of their target audience, thus helping them to position themselves more insightfully and efficiently in the marketplace 	The paper provides a comprehensive overview of the current state of Big Data's influence on digital marketing strategies, highlighting the increasing importance of data and technological innovations in transforming business models.	Big Data has a significant influence on digital marketing strategies, allowing companies to optimize their strategies, predict customer responses, and create more accurate, targeted, and creative marketing campaigns. It is reshaping management and marketing strategies through digitalization and is perceived as a new frontier in business competitiveness. The role of data in companies is becoming increasingly strategic, contributing to the achievement of business efficiency and quality.
Marketing 4.0: Enhancing Consumer-Brand Engagement Through Big Data Analysis	A. I. Jimenez-Zarco, A. Rospigliosi, M. P. Martínez-Ruiz, Alicia Izquierdo-Yusta	2017	Marketing 4.0 requires a depth knowledge about the evolution of marketing, especially about Marketing 3.0.	The paper discusses the evolution of marketing from Marketing 3.0 to Marketing 4.0, emphasizing the use of big data to enhance the consumer-brand relationship. It highlights the lack of academic literature on Marketing 4.0 and the need for a comprehensive understanding of the evolution of marketing and the analysis of various technologies to design effective marketing strategies. The	The "state of the art" in A. I. Jimenez-Zarco, A. Rospigliosi, M. P. Martínez-Ruiz, Alicia Izquierdo-Yusta (2017) is the evolution from Marketing 3.0 to Marketing 4.0, with a focus on the use of big data in marketing strategies. The authors highlight the lack of academic publications on Marketing 4.0 and emphasize the need for a deep understanding of the evolution of	The paper provides an overview of the evolution of marketing from Marketing 3.0 to Marketing 4.0, emphasizing the use of big data in the latter and the need for a deeper understanding of marketing evolution and technology's role in enhancing brand-consumer relationships.

				chapter aims to review Marketing 4.0 concepts and analyze the utilization of big data in improving the consumer-brand relationship.	marketing and the utilization of various technologies to enhance the brand-consumer relationship.	
Big data use in marketing strategy	-	2022	The briefing saves busy executives, strategists, and researchers hours of reading time by selecting only the very best, most pertinent information.	-	-	The paper provides a condensed review of the latest management developments, with a focus on the application of big data in small and medium-sized enterprises, particularly in the context of Spanish businesses. It aims to save time for busy executives, strategists, and researchers by presenting the most pertinent information in an easy-to-digest format.
Data-driven marketing for growth and profitability	Balakrishna Grandhi, Nitin Patwa, K. Saleem	2020	Better use of data can help companies enhance shareholder value by bringing about "customer centricity"	The main findings are: - The success of DDM depends on how well an organization embraces the practice, with the extent of resources invested being a key indicator of commitment. - An iterative and incremental approach is crucial for managing the growing volume of data and reaping the benefits of DDM. - There is a lack of knowledge regarding who is adopting DDM and how big data can be harnessed to enhance the effectiveness and efficiency of marketing budgets.	The state of the art in the paper emphasizes the importance of data-driven marketing (DDM) and the factors influencing its success, such as organizational commitment, resource investment, perceived usefulness, perceived ease of use, attitudes, and social factors. It also highlights the lack of knowledge regarding DDM adoption and the potential of big data for enhancing marketing budget effectiveness.	The paper discusses the importance of understanding consumer behavior, the need for businesses to be customer-centric, the utilization of data-driven marketing (DDM), and implications for managing the growing volume of data. It also emphasizes the significance of building a knowledge base on DDM practices, challenges, and opportunities.
Digital Marketing Framework Strategies Through Big Data	Samee Sayyad, Arif Mohammed, Vikrant Shaga, Abhishek Kumar, K. Vengatesan	2019	Big data analytics is more useful in e-business companies to analyze the behavior of customer, systematic	The main findings of the paper are: - Big data analytics is more useful in e-business companies for analyzing customer behavior, systematic	The state of the art in Samee Sayyad, Arif Mohammed, Vikrant Shaga, Abhishek Kumar, K. Vengatesan (2019) is the usefulness of Big Data in e-business companies.	The paper provides a summary of the concept of Big Data and its relevance in e-business companies, discussing the challenges associated with Big Data and highlighting the



			analytics and acquiring profit over the competition.	analytics, and gaining a competitive advantage. - The outcome of the study indicates that big data is fundamentally useful in e-business companies.		usefulness of big data analytics in e-business.
Unlocking the power of big data in new product development	Yuanzhu Zhan, Kim Hua Tan, Yina Li, Ying Kei Tse	2018	Big data can offer customer involvement so as to provide valuable input for developing new products.	- Big data can enable customer involvement to provide valuable input for developing new products. - Big data can support new product development in various phases, including generation of ideas and concepts, design and engineering, and test and launch. - Big data allows customers to actively participate in suggesting novel ideas and experimenting with new products and features.	-	-
Big Data and consumer behavior: imminent opportunities	Charles F. Hofacker, E. Malthouse, F. Sultan	2016	Big data have the potential to further our understanding of each stage in the consumer decision-making process.	Big Data has the potential to enhance understanding of consumer decision-making processes and may lead to a shift in the feedback loop between theory and results. There is also a shift towards inductive data mining and A/B testing, with a focus on numerous secondary data sources, but limitations such as poor quality and unrepresentativeness may exist.	The "state of the art" in Charles F. Hofacker, E. Malthouse, F. Sultan (2016) involves the potential of Big Data to enhance the understanding of consumer decision-making processes and a shift in the feedback loop between theory and results, as well as the emergence of a new data culture advocating for inductive data mining and A/B testing.	The paper discusses how Big Data can enhance the understanding of consumer decision-making process and highlights the emergence of a new data culture in marketing practice.
The Role of Big Data in Digital Marketing	Neslihan Cavlak, Ruziye Cop	2021	Big data analytics for marketing of businesses are scarcely researched.	The main findings of the paper are the importance of big data in the digital marketing environment and how big data analytics can help businesses understand the unmet demands and expectations of consumers, leading to sustainable business success.	The "state of the art" in Neslihan Cavlak, Ruziye Cop (2021) is the importance of big data in the digital marketing environment, including a comprehensive literature review covering the definition, components, sources of big data, and the role of big data in digital environments, as well as examples of	The paper provides a comprehensive literature review on the importance of big data in the digital marketing environment, covering its definition, components, sources, and role in digital environments, along with examples of businesses using big data.

					businesses using big data. The paper also emphasizes the scarcity of research on this issue despite its importance for businesses.	
Marketing strategies evaluation based on big data analysis: a Clustering-MCDM approach	H. A. Mahdiraji, E. Zavadskas, Ali Kazeminia, Ali Asghar Abbasi Kamardi	2019	A digital banking strategy has been suggested applying big data analysis.	The main findings are the presentation of a framework for developing a digital banking strategy, the focus on customer analysis with a strategic management approach, and the emphasis on customer-oriented and service-centric approaches.	The state of the art includes the use of big data analysis, data mining tools such as clustering, RFM model in customer value analysis, BWM for decision making, and COPRAS for ranking alternatives based on decision criteria.	The paper's summary includes suggesting a digital banking strategy using big data and data mining tools, focusing on clustering the market based on the performance of 2,600,000 accounts in an Iranian bank. The research combines clustering and MCDM techniques to segment customers and develop a strategy for each cluster, with a new approach to RFM and expert opinion. The study uses a large volume of data from over 2,600,000 accounts for 403 weeks, providing a framework for developing a digital banking strategy. The research applies a customer-oriented and service-centric approach, identifying and studying customers' behavior through bank transaction analysis, clustering customers using k-means, and developing a digital banking strategy for two influential clusters.
Adoption of Big Data Technology for Innovation in B2B Marketing	L. Wright, Robin Robin, M. Stone, Dr Eleni Aravopoulou	2019	Big data and its analytics and applications can be indicators of organizations' ability to	The main findings of the paper suggest that organizations are leveraging big data, stemming from the increasing volume of online business and customer transactions, to innovate and respond to market opportunities. Big	The state of the art in the paper is the understanding of big data's role in business innovation, particularly in B2B organizations and how their innovation can transform customer	The summary of the paper is that it explores the use of big data in innovation and market leadership in B2B relationships, providing a framework supported by case studies. It emphasizes the role of

			innovate to respond to market opportunities.	data and its analytics are viewed as indicators of organizations' ability to innovate in response to market opportunities.	experience at the end of the value chain.	big data in helping organizations innovate and respond to market opportunities, ultimately transforming customer experience at the end of the value chain.
Big Data in Marketing Arena. Big Opportunity, Big Challenge, and Research Trends: An Integrated View	Mohammad Saleem Alshura, Abdelrahim M. Zabadi, Mohammad Abughazaleh	2018	Big data applications and practices to marketing are still in early stages.	<ul style="list-style-type: none"> - The research in big data applications and practices to marketing is still in early stages, and there is a need for more direct efforts towards the business for big data to thrive in the marketing domain. - There is a research gap in multidisciplinary research, particularly in aligning the benefits of Big Data and its challenges toward marketing. - Many businesses and different industries are starting to address the gaps and challenges to effectively harness big data in marketing. 	The state of the art in the paper indicates that while big data has garnered significant attention and is increasingly recognized in marketing, research in its applications and practices is still in its early stages, with a focus on both the opportunities and challenges it presents. There is a growing emphasis on the importance of big data in supporting decision-making for marketers and understanding changing customer preferences. However, concerns about individual privacy in the context of big data utilization are also highlighted. Overall, the paper suggests that while there has been increasing attention on big data in marketing, it may not have reached its full potential yet.	The paper provides an integrated view of big data in the marketing field, identifying major trends, opportunities, and challenges. It acknowledges the early stage of research in big data applications and practices in marketing and emphasizes the need for more direct efforts to promote big data in the marketing domain. The study also discusses the gap between academia and practices and highlights the increasing attention on big data in marketing over the past few years. It concludes by acknowledging the limitations of the current studies and the need for further research in this area.
Leveraging “big data” to optimize digital marketing	-	-	Big data integration for better consumer understanding can optimize digital marketing.	-	-	-
Advanced Customer Analytics: Strategic Value Through Integration of	Brent Kitchens, David G. Dobolyi, Jingjing Li, A. Abbasi	2018	Firms must achieve agility in combining rich data across the organization to deploy analytics that sense and	The main findings of the paper are the development of a framework for identifying and evaluating various sources of big data to create a value-justified data infrastructure for	The paper presents the state of the art in leveraging big data analytics to achieve agility in deploying advanced customer analytics through a framework that integrates	The summary in Brent Kitchens, David G. Dobolyi, Jingjing Li, A. Abbasi (2018) emphasizes the challenges firms face in generating strategic value from isolated ad hoc

Relationship-Oriented Big Data			respond to customers in a dynamic environment.	advanced customer analytics, the incorporation of relationship-oriented constructs in analytics to provide actionable and valuable insights, and the successful instantiation of the framework in a prototype system that accurately predicts a variety of customer behaviors, demonstrating its ability to drive significant value.	relationship-oriented constructs and a customized learning method. (confidence: 90)	initiatives in the context of big data analytics. It also introduces a framework for identifying and evaluating various sources of big data to create a value-justified data infrastructure that enables focused and agile deployment of advanced customer analytics.
Does big data mean big knowledge? Integration of big data analysis and conceptual model for social commerce research	Xuemei Tian, Libo Liu	2017	Big data analytics can be successfully combined with a theoretical model to produce more robust and effective consumer purchase decisions on social commerce sites.	The main findings of the paper are the assessment of opportunities and challenges in developing a holistic big data research approach, the successful combination of big data analytics with a theoretical model for consumer purchase decisions, and the important insights into information systems research and practice.	The "state of the art" in Xuemei Tian, Libo Liu (2017) involves the assessment of big data trends in the current business context, the integration of a theoretical model with big data analytics, and the demonstration of their successful combination in producing more effective consumer purchase decisions. The paper also offers important insights into information systems research and practice.	The paper provides an assessment of the relevance of big data trends in the current business context through evidence-based documentation of current and emerging applications, as well as their wider business implications. It also demonstrates the successful combination of big data analytics with a theoretical model to produce more robust and effective consumer purchase decisions.
Influence of Big Data Technology on Enterprise Marketing Strategy	Ling Miao	2021	The main purpose of this study is to actually help the relevant enterprises improve their ability to formulate marketing strategies in this new era of big data.	The paper aims to analyze the impact of massive data and information on an enterprise's marketing strategy and intends to help enterprises improve their ability to formulate marketing strategies in the era of big data.	The paper discusses the impact of big data on marketing strategies, the challenges and opportunities it brings to enterprises, and emphasizes the need to guide enterprises in formulating important marketing strategies in the era of big data. It aims to help enterprises improve their ability to use big data for creating new advantages for enterprise development.	The summary in Ling Miao (2021) is the impact of big data on an enterprise's marketing strategy, including the challenges and opportunities brought by the availability of information in the big data era, and guiding enterprises in formulating and planning important marketing strategies using big data.
Customer relationship management and big data enabled:	Muhammad Anshari, Mohammad Nabil Almunawar, Syamimi	2019	Big data has enabled business to become more aggressive in	The main findings are: - CRM requires big data for enhancing customer experiences, particularly in	The "state of the art" in Muhammad Anshari et al. (2019) is the use of big data in CRM strategies to support	The summary in Muhammad Anshari et al. (2019) is about the impact of big data on CRM



Personalization & customization of services	Ariff Lim, Abdullah S. Al-Mudimigh		terms of marketing strategy.	personalization and customization of services. - The use of big data in CRM has allowed businesses to adopt more aggressive marketing strategies, such as push notifications through smartphones targeting potential audiences.	personalization and customization of sales, services, and customer services. It emphasizes the need for big data in improving customer experiences and decision making for enhancing customer management. Additionally, the study highlights the use of big data in enabling businesses to become more aggressive in marketing strategies such as push notifications through smartphones.	strategies, emphasizing the need for big data in improving customer experiences through personalization and customization of services. It also discusses the characteristics of big data and its role in enhancing decision making for customer management. The study reveals that CRM with big data enables businesses to be more aggressive in their marketing strategies.
The Influence and Countermeasures of Enterprise Marketing Activities under the Big Data Background	Wang Nan, Shi Xiaochun	2020	Enterprises can obtain a large amount of data information based on online sales.	The paper's main findings include the impact of Internet information technology on the emergence of the network economy, the potential for enterprises to utilize data from online sales in the context of big data, and the analysis of big data's impact on enterprise marketing activities, along with proposed optimization strategies.	The "state of the art" in Wang Nan, Shi Xiaochun (2020) is the impact of the rapid development of Internet information technology on the network economy, the analysis of big data on enterprise marketing activities, and the proposal of optimization strategies.	The summary in Wang Nan, Shi Xiaochun (2020) is an analysis of the impact of big data on enterprise marketing activities and the proposal of optimization strategies to help enterprises make full use of data information in the context of big data. It also includes a brief overview of the big data background and network economy.
Impact of Big Data and Machine Learning on Digital Transformation in Marketing: A Literature Review	Andrej Miklošič, N. Evans	2020	The prospects of digital transformation in marketing can benefit academic researchers and business practitioners working in the domain of information technologies, information systems, business, and marketing.	The main findings of the paper include the impact of big data and machine learning on digital transformation in the marketing industry, the necessity for organisations to adapt to new technologies, and the need for strategic collection and analysis of data to effectively target marketing and advertising efforts.	-	-



Investigation into Big Data Impact on Digital Marketing	Ketty Grishikashvili, S. Dibb, M. Meadows	2014	The industries that tried to narrow the gap and put necessary mechanisms in place to make use of big data for marketing are upfront on the market.	The main findings of the paper are that businesses see the potential of big data for deriving competitive insight and shaping marketing strategy decisions, and industries that effectively use big data for marketing are ahead in the market.	The "state of the art" in the paper discusses the potential of big data analysis for deriving competitive insights and shaping marketing strategy decisions, the susceptibility of industries offering virtual products to digital transformation, and the advantage of industries using big data for marketing in the market.	The paper discusses the potential of big data for businesses to derive competitive insight and shape marketing strategy decisions, particularly in industries offering virtual products. It also mentions that industries making use of big data for marketing are upfront on the market.
Social Media Data Analytics – Using Big Data for Big Consumer Reach	Kayli Blackburn, Kyle Boris	2020	Social media marketing optimization demonstrates how Excel's Solver add-in can be used for advertising allocations with the goal of highest potential sales.	The main findings of the paper are the importance of a social media presence for businesses and the demonstration of how small and mid-size businesses can optimize their advertising budgets using Excel's Solver add-in.	The "state of the art" in Kayli Blackburn, Kyle Boris (2020) involves the necessity of a social media presence for businesses, evaluation of various data segments including gender, and the demonstration of advertising budget allocation for maximizing exposure and conversions on social media platforms.	The summary in Kayli Blackburn, Kyle Boris (2020) discusses the importance of a social media presence for businesses, the data segments evaluated in the research (including gender), and aims to demonstrate how businesses can allocate their advertising budgets to maximize exposure and conversions on social media platforms.
Business and data analytics: New innovations for the management of e-commerce	Robert J. Kauffman, Jaideep Srivastava, Jamshid A. Vayghan	2012	Traditional data management, data engineering, and data analytics techniques do not work well with the historically large amounts of data that many e-commerce operations face today.	The main findings of the paper are: - Lack of research on effective ways to leverage data for management and strategy in e-commerce. - Need for research encompassing various types of data. - Requirement for understanding the entire data life cycle in organizations.	The paper discusses the critical role of data in e-commerce operations, the challenges posed by large amounts of data, and the need for innovative ways to manage and use big data for 'smart' e-commerce. It emphasizes the need for effective ways to leverage data for management and strategy.	The paper emphasizes the critical role of data and information in e-business operations, the challenges posed by big data, and the need for more systematic research and innovative ways to manage and use big data to support "smart" e-commerce.
From consumer panels to big data: An overview on marketing data development	Stuart Van Auken	2015	Consumer panel data is a key strength of consumer panel data.	The main findings of the paper are the comparison of consumer panel data with Big Data, highlighting their respective strengths and weaknesses, the ability of consumer panel data to link consumer characteristics with	The "state of the art" in Stuart Van Auken (2015) is the transition from consumer panels to Big Data in marketing data development, emphasizing the unique strengths and concerns of each approach.	The paper provides an overview of the development of marketing data from consumer panels to Big Data, highlighting the unique characteristics of each and discussing their potential, issues,



				purchase behavior, and the potential, issues, and future of Big Data in the context of marketing.		and future in the context of marketing.
From consumer panels to big data: An overview on marketing data development	Stuart Van Auken	2015	Consumer panel data is a key strength of consumer panel data.	Big Data builds on consumer panel data and possesses unique characteristics. Consumer panel data has the ability to link consumer characteristics with purchase behavior. Despite its lack of structure, Big Data can provide strong consumer insights.	The "state of the art" in Stuart Van Auken (2015) is the transition from consumer panels to Big Data in marketing data development, recognizing the unique strengths and concerns associated with each.	The paper provides an overview of the development of marketing data from consumer panels to Big Data, highlighting the unique strengths of each and discussing the potential, issues, and future of Big Data in the context of marketing.



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