Data-Driven Marketing: A Catalyst for Sustainable Business Development in Corporations

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Abstract

This research examines sustainability's role in corporate development and data-driven marketing strategies. With the rise of awareness about sustainability, companies are increasingly using advanced data analytics to polish their marketing strategies and reshape business objectives with broader societal and environmental goals. The study illustrates some key components, including characteristics of data-driven marketing strategies and technological innovations in marketing processes, by collecting and analyzing data that help to get more precise and effective marketing. Sustainability is discussed from the perspective of corporate social responsibility (CSR) and environmental and economic sustainability strategies. It also demonstrates how data-driven strategies are adopted among different types of corporations and the different challenges they face. This research underscores how data-driven marketing enhances customer engagement and sustainability integration with substantial budget allocations, ongoing investments in data analytics, and expectations for future technological advancements and use of popular data sources. The methodology involves a survey conducted among professionals from Poland and Bangladesh, designed in both English and Polish to ensure a diverse and representative sample. The survey includes 23 questions addressing various aspects of data-driven marketing and its impact on sustainability, yielding rich and varied data. Findings suggest that data-driven marketing strategies significantly influence sustainable business development. By leveraging advanced technologies and focusing on sustainability, companies can improve customer engagement, optimize marketing efforts, and align business objectives with sustainability goals, supporting long-term environmental and social benefits.

Keywords: Sustainability in Corporate Development, Data-driven Marketing Strategies, Sustainable Business Strategy, Tailored Data Strategies, Holistic Marketing Strategy

JEL classification: M3, Q01

1 Introduction

In this world, companies are more concerned about sustainability; collecting and analyzing data to improve their marketing approaches (Ali, 2023) which brought the idea of a data-driven marketing strategy and sustainable business development. This concept, "Data-driven marketing strategy and sustainable business development," helps companies by optimizing customer information (Rosário & Dias, 2023) and aligns with a broader trend where companies can establish a place in society and integrate sustainability into business strategy. These strategies leverage vast amounts of consumer data to understand customers better (Rosário & Dias, 2023). By embracing AI-powered marketing solutions, marketers benefit from data-driven customer experiences, enhanced audience understanding, facilitated targeted conversations, and a focus on sustainable growth beyond just ROI (Gabelaia, 2024) and which drives profitability. A sustainable business strategy not only helps a company maximize its profit but also makes a significant impact on environmental and social responsibility (Reddy, 2024). Although the concept of sustainable business development is relatively new (Hidayat et al., 2022), it is helping companies to reshape business operations. Societal trends increasingly emphasize sustainable business practices (Fowler & Hope, 2007) that balance financial, environmental, and social responsibilities (Boons & Lüdeke-Freund, 2013). This trend has led to sustainable development business models that aim to create economic and non-financial value (Comin et al., 2019), addressing societal and environmental concerns through ongoing practices. Moreover, technology-based marketing is bringing revolutionary changes, gaining deeper insight into customer behavior and preferences (Daoud et al., 2023). As a result, companies can tailor their marketing strategies and adopt a holistic marketing approach to serve their customer more efficiently. (Ali, 2023). Ultimately, a data-driven holistic marketing approach company's growth and increasing results in the company's growth and competitiveness in the market (Hidayat et al., 2022).

Innovation and the introduction of technology-based marketing help companies gather a large amount of data. However, the expenses involved in investing in resources like software, servers, and skilled data scientists are extremely high and require substantial economies of scale. Big companies like Google, Facebook, and Amazon are investing in new expertise to handle large data volumes so that they can manage vast amounts of data effectively. This gives them a comparative advantage due to their large fixed cost, allowing them to attain market dominance (Nuccio & Guerzoni, 2019). However, Small and Medium Enterprises (SMEs) face

significant challenges in adapting to effectively utilizing large volumes of data and constructing business strategies (Sihvonen & Weck, 2022).

While extensive research exists on data-driven marketing strategies and sustainable business practices independently (Chaffey & Smith, 2022), a notable gap exists in determining how data-driven marketing can drive sustainability by creating a holistic approach. Traditional demand prediction methods are insufficient for today's complex market, necessitating more comprehensive strategies to predict and manage market demands accurately (Kumar et al., 2020). Companies struggle to efficiently extract value from abundant data, leading decision-makers to spend excessive time analyzing information and making optimal decisions. A report of McKinsey in 2016 found that US sectors achieved only 10-60 percent of the big data analytics value predicted in 2011 due to talent shortages and data silos. AI implementation offers opportunities for data-driven approaches and customer understanding but raises concerns about privacy, research methodologies, and the ethical implications of emotional analysis (Daoud et al., 2023). Roome & Louche, (2016) highlight a gap in research on operationalizing sustainable business models, necessitating investigation into practical implementation methods.

This paper aims to investigate the integration of data-driven marketing strategies with corporate sustainability initiatives. Specifically, it explores the relationship between the types of corporations and sustainability, assessing whether this integration can lead to sustainability shortly. The research questions guiding this study are: How do data-driven marketing strategies impact sustainable business development for corporations? What role do AI and machine learning play in the future of data-driven marketing strategies? Finally, how do companies utilize personalization to enhance customer engagement and contribute to sustainability goals?

This research is essential for several reasons. Firstly, marketing analytics and digitalization are essential for understanding customer behavior and developing effective, data-driven marketing strategies (Rosário & Dias, 2023). These strategies help to drive personalized marketing efforts, optimize resource allocation, and enhance customer engagement, which is crucial for an organization's profitability and growth.

Secondly, societal trends increasingly emphasize the importance of sustainable business practices and creating practical value by integrating social, environmental, and business activities (Boons & Lüdeke-Freund, 2013). Recognizing their importance and environmental

impact, corporations adopt sustainable practices and comply with environmental legislation. Understanding the role of data-driven marketing in achieving these sustainability objectives is vital in creating business models that are profitable, responsible, and resilient to long-term challenges.

Lastly, the integration of AI and predictive analytics provides retailers with deep insights into consumer behavior and market trends, enabling data-driven decision-making (David Iyanuoluwa Ajiga et al., 2024). These technologies can further refine personalization strategies. Exploring their role in the future of marketing is critical for understanding how businesses can continue to evolve and meet both market and societal expectations.

Addressing these gaps in the existing literature contributes to the current understanding of how data-driven marketing can strategically leverage sustainable business development for human, social, and societal benefits. This research offers valuable insights for both academic research and corporate practice. Figure 1 illustrates the overall overview of the research and the methodology employed.
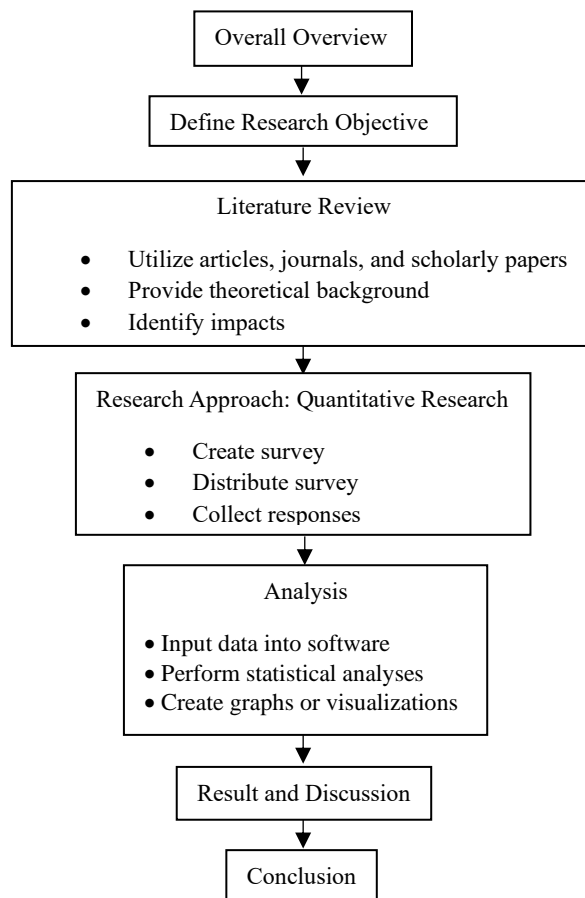

Figure 1 Overall Overview

Source: Own compilation based on self-study

2   Literature review

In the current marketing discourse, "Data-Driven Marketing" has become an important term in describing the strategic idea of incorporating data analytics into marketing activities. Data-driven marketing strategy refers to creating effective marketing strategies to get to know their clients and drive marketing communications using data about customers (Abakouy et al., 2019). The data-driven approach has introduced a new concept called neuromarketing, which focuses on increasing user interaction and understanding the emotional response of clients to content shared on online platforms. Digital behavior and neuromarketing are areas of ongoing study (Hidayat et al., 2022).

2.1   Characteristics of Data-Driven Marketing Strategies

Data-driven marketing is one of the strategic approaches that marketers use to collect information, which we refer to as data. After that, they use data analytical tools to prepare this information for making suitable decisions. This study illustrates some key components, including characteristics of data-driven marketing strategies. These characteristics are: **(i) Data Collection**: This involves gathering information (Kim et al., 2008) from digital platforms, customer feedback (Kitsios et al., 2021), and traditional research methods, with online sources providing the quickest access to valuable insights (Litman et al., 2017). **(ii) Analysis and Insights**: Marketers analyze collected data to identify trends and patterns (Anshari et al., 2019), aiming to improve products and understand customer preferences better (A. Wang et al., 2020). **(iii) Personalization**: Marketers use analyzed data to create personalized marketing strategies (Ebadi Jalal & Elmaghraby, 2024), tailoring messages and recommendations to individual customer preferences and past behaviors (Douglas Olsen & Pracejus, 2020). **(iv) Segmentation**: Marketers segment customers using diverse data to create targeted campaigns (Walters & Bekker, 2017), improving results and resource allocation (Zhang et al., 2022). **(v) Real-time Decision Making**: Real-time data enables marketers to adjust strategies instantly (Holloway, 2024), track campaign effectiveness (Adwan et al., 2023), and predict customer behavior for better returns (Alfian et al., 2019). **(vi) Attribution Modeling**: This tracks customer touchpoints (Romero Leguina et al., 2020) from awareness to purchase (Alexandrovskiy & Trundova, 2022), helping marketers optimize strategies and allocate resources effectively (Kannan et al., 2016).

2.2 Technological Innovations in Data-Driven Marketing Strategies

When marketing got a separate identity, researchers developed methods that gave birth to several theories and strategies marketers use (Shaw, 2009). Marketers also used new technologies to stay competitive (V. Kumar et al., 2021). The technological revolution and invention of the internet changed conventional marketing practices and generated digital marketing concepts (Kapoor & Kapoor, 2021). The rise of the internet brought revolutionary changes in communication (S. Kumar et al., 2019) and information technology (Carlo et al., 2011). Previously, traditional marketing interactions with clients were conducted through TV, radio, print ads (newspaper, magazine), billboards, direct mail, flyers, etc. (Shahid, 2023). Digital marketing brought innovation and expanded business opportunities, thus increasing profit (Shahid et al., 2023).

At present, businesses are experimenting with data-driven marketing managers for sustainability. Key roles of technology in marketing include: **(i) Interaction Enhancement**: Data-driven marketing has revolutionized consumer-firm interactions (Krafft et al., 2021), enabling businesses to understand better and engage customers (Grandhi et al., 2021) through various digital platforms and strategies (Nuccio & Guerzoni, 2019). **(ii) Data Enrichment**: Digital marketing enables extensive data collection and analysis from various online touchpoints (Kannan & Li, 2017), facilitating better customer understanding and personalized marketing strategies (Özoğlu & Topal, 2020). **(iii) Innovation Catalyst**: Modern technologies like AR, VR, AI, and big data are revolutionizing marketing (Zainab Efe Egieya et al., 2023), enabling innovative product showcasing (Rane, 2023) and brand image enhancement (Balasubramanian et al., 2022). **(iv) Strategic Frameworks**: Marketers leverage evolving technologies to adapt strategies (V. Kumar et al., 2021), enhance customer interactions (Foltean & Van Bruggen, 2022), and remain competitive in the dynamic marketing landscape (Ahmed & Sur, 2024).

2.3 Sustainability in Data-Driven Marketing Strategies

Sustainable marketing refers to socially responsible products, services, and behaviors (Jia et al., 2023). Eco-friendly businesses naturally prioritize sustainable marketing tactics (Lin et al., 2021), but firms not fundamentally committed to sustainability can also include these ideas in their plans. Companies from diverse industries have launched programs to meet social and environmental norms (Babiak & Trendafilova, 2011), collaborating with stakeholders to enhance sustainability throughout the value chain (Sheth & Parvatiyar, 2021). Shifting

corporate attention to sustainability represents transcendence (Shrivastava et al., 2013) from strict business growth disciplines to serious environmental and societal commitments (Eweje, 2011).

Marketing analysts employing advanced analytical techniques (Sivarajah et al., 2017) are at the forefront of relying on data-driven practices to promote sustainable business (Awan et al., 2023). Many data-driven (usually big-data and artificial intelligence) technologies might be needed to convert valuable data into high-value outcomes (Vassakis et al., 2018). Creating business value through data processing and analytics is thus considered a legitimate business approach – a data-driven business model (DDBM) – by many companies today (Sihvonen & Weck, 2022). Innovative enterprises routinely report that leveraging data to improve decision-making (Demirkan & Delen, 2013) enables them to expand, succeed, and compete in the new economy (Aagaard, 2019). Corporations can use data analytics to understand better stakeholders, including employees, customers, and local communities (Pappas et al., 2018). This leads to efforts to promote fair labor practices, engage with community development projects, and undertake philanthropic activities, engaging with stakeholders to build reputation, foster social cohesion, and improve social well-being (Macassa et al., 2021). Data-led marketing strategies deliver long-term value creation (Maja & Letaba, 2022) and robustness beyond short-term profitability (Behrens et al., 2021). Corporations can use data analytics to forecast future trends and develop sustainability strategies that increase innovation and competitive scores (Akter et al., 2016a). By aligning their marketing activities with sustainability objectives, corporations gain brand value, attract socially and environmentally conscious consumers, and create new sustainable products and services markets (Eunsang Yoon & Steven Tello, 2009).

CSR is related to data-driven marketing strategies, extending beyond small philanthropic activities to proactive measures creating shared value between the company and society (H. Wang et al., 2016). Data analytics can be used to discover new opportunities where social and environmental avenues can be integrated into a corporation's core business and competitive strategy (Bartosik-Purgat & Ratajczak-Mrożek, 2018). Moreover, data-driven marketing strategies based on CSR using Big Data are founded on a broader trend of more responsible and sustainable business practices (Marsden et al., 2018). More and more firms are striving to maximize profits and contribute to and sustain social and ecological well-being in society (Rogers et al., 2012).

Data-driven marketing strategies can proactively establish environmental sustainability practices that go beyond regulatory requirements and provide opportunities for innovation and competitiveness (Walker & Moran, 2019). Corporations can use data analytics to identify opportunities for sustainable innovation and develop strategies that align with business goals (Akter et al., 2016). Indeed, Klettner et al., (2014), argued that corporations are increasingly embedding environmental considerations in their core business strategies. Strategies for economic sustainability are crucial. Economic sustainability strategies, as echoed by Porter & Linde, (1995), are the activities that firms undertake to minimize damaging impacts on economic systems and increase the chances for continued success and resilience over time, especially when guided by data-informed insights that reveal opportunities for gains in efficiency and profitability through resource optimization, cost reduction, and competitive advantage (Cerin, 2006).

Big data can be used to identify opportunities for sustainable innovation and derive business strategies (Pappas et al., 2018). Additionally, using economic sustainability metrics indicates a broader adherence to responsible and sustainable corporate practices (Bansal, 2002). Corporations today are more focused than ever on operating in economically productive but socially and environmentally responsible ways (M. Høgevold et al., 2014).

2.4   Overview of Corporations

The business historian Alfred Chandler described a corporation as 'a legal person created by one or more persons or other entities to conduct any lawful business or purpose' (Ciepley, 2013). It has rights and responsibilities independent of its owners, including the capacity to enter into contracts, purchase property, pay taxes, and borrow capital. Given the complexity and diversity of the corporate landscape, there is a strong need for innovative research to spur theoretical development and establish a positive research agenda (Boyd & Solarino, 2016). Scholars can develop new theoretical frameworks, models, and methodologies to capture many ownership structures and disentangle their impact on corporate behavior and performance (DesJardine et al., 2023).

Small as well as large companies in any industry can be leaders in data-mining innovation (Cheah & Wang, 2017). Data-driven strategies can also help corporations find new markets by revealing patterns in customer usage, preferences, and turnover (Valdez Mendia & Flores-Cuautle, 2022) that can be exploited with customized products and services. Adopting data-

driven strategies aligns with a general trend towards embracing technological and innovative capabilities as sources of organizational alignment to business needs. Forward-looking companies recognize that data is a strategic asset that can transform management practices and organizations (Gavrikova et al., 2022). They invest in advanced technologies and infrastructures to acquire data, make it visible, and use it. This way, companies can utilize data-driven marketing tactics to be more agile, reactive, and competitive (Medeiros & Maçada, 2022). It's not as easy as it should be for businesses and corporations to roll out data-driven marketing strategies.

Companies encounter technological challenges (such as buying, implementing new software, and managing various data platforms), legal challenges (such as data privacy and protection), and institutional challenges (such as corporate culture). Some companies have reservations about these approaches. Many companies struggle to effectively use the vast amount of customer and market data they can access. There is a risk that corporations will be less successful in translating data-driven insights into decision-making practices that promote sustainable business development (Zheng et al., 2024). Commercial organizations might, at best, be slow in developing the ability to translate data analytics insights into action. They may not make the best use of resources, be responsive to sustainability limitations and opportunities, or find ways to innovate by leveraging corporate data assets. Companies have struggled to build internal capabilities with data analytics, hindering their ability to make the most of corporate data (Nilashi et al., 2023). The emerging regulatory environment places considerable obstacles before corporations seeking to responsibly implement data-driven marketing strategies (S. Kumar et al., 2022). Companies must increasingly cultivate corporate cultures that support compliance with more and more stringent regulations related to data privacy and consumer protection (Bussmann & Niemeczek, 2019).

3 Research Design & Methodology

This paper employs a mixed-methods research design, incorporating both quantitative and descriptive approaches, to explore the impact of data-driven marketing strategies on sustainable business development in corporations. Secondary data were sourced from various journals, scholarly articles, and other academic publications to gather comprehensive insights.

3.1 Survey Design and Administration

A structured questionnaire was designed to collect primary data from professionals across different industries, focusing on Poland and Bangladesh. The survey, conducted from January 25, 2024, to May 15, 2024, was available in English and Polish. It comprised 23 questions aimed at understanding companies' data-driven marketing strategies and their effects on sustainability. Key areas of inquiry included the allocation of marketing budgets, investment in data analytics tools, the effectiveness of data-driven marketing in achieving sustainability goals, and the anticipated future trends in data-driven marketing.

3.2 Sample and Data Collection

This study was a pilot study, intended to assess the feasibility of conducting a full-scale study within the given time frame and budget. By conducting this pilot, this research aimed to identify potential challenges and refine the methodology for a larger, more comprehensive study. The pilot study also helped in testing the survey design, evaluating response rates, and ensuring the questions were clear and relevant to the target audience.

A total of 62 valid responses were collected through random sampling, targeting professionals on platforms like LinkedIn, Facebook, and Instagram. Respondents were selected based on their roles within companies and their experience levels, ensuring a diverse sample from different business sizes and sectors. This approach allowed for a preliminary understanding of the topic, providing valuable insights that will inform the design and execution of a larger-scale study in the future.

3.3 Data Analysis

The quantitative data was processed using XLSTAT for descriptive statistical analysis. Further advanced statistical analyses were conducted using SPSS to explore the relationships between data-driven marketing strategies and sustainable business growth. The results were visualized to provide clear, actionable insights.

Integrating data-driven strategies with sustainable business practices represents a pivotal evolution in management and marketing. Companies are increasingly leveraging advanced analytics to not only enhance customer insights and operational efficiencies but also to align with

broader sustainability goals strategically. This synergy allows firms to optimize resource allocation, minimize environmental impact, and foster long-term stakeholder relationships. By harnessing AI-powered technologies, organizations can navigate consumer behavior and market dynamics complexities while driving innovations that promote profitability and environmental responsibility. As businesses continue to embrace these integrated approaches, they are poised to lead in creating meaningful societal impacts through sustainable business models.

4   Results and Discussion

The study aimed to explore the impacts of data-driven marketing on sustainable business development using both quantitative and descriptive research methods. A survey questionnaire was distributed among professionals, yielding 62 valid responses that identified key impacts of data-driven marketing. Additionally, descriptive research enriched the analysis with insights from articles, journals, and scholarly papers, providing a robust theoretical background. The combined findings offered comprehensive insights into data-driven marketing strategies and their role in sustainable business growth. This dual approach facilitated informed conclusions on the subject's impacts and outcomes. The study highlights the pivotal roles of marketing analytics, digitalization, and technological integration within contemporary business practices. These elements are crucial for understanding customer behavior and developing effective, data-driven marketing strategies that drive personalized marketing efforts, optimize resource allocation, and enhance customer engagement, thereby fostering organizational profitability and growth.

Obs. No	Missing values	Sum of weights	Mode	Mode frequency	Category	Frequency per category	Rel. frequency per category (%)
Number of Employees							
62	0	62	c) Large corporations	22	a) Small Corporations	19	30.65
					b) Medium Corporations	21	33.87
					c) Large corporations	22	35.48

Percentage of Marketing Budget Allocated to Data-Driven Initiatives

62	0	62	b) 10% to 25%	29	a) 0% to 10%	9	14.52
					b) 10% to 25%	29	46.77
					c) 25% to 50%	16	25.81
					d) 50% +	8	12.90

Annual Investment in Data Analytics Tools and Technologies

62	0	62	a) Yes	41	a) Yes	41	66.13
					b) No (No)	10	16.13
					c) Not sure	11	17.742

Effectiveness of data-driven marketing strategies for sustainability goals

62	0	62	b) Moderately	35	a) Not at all	6	9.68
					b) Moderately	35	56.45
					c) Extremely	21	33.87

Anticipation of Utilization Change in the Next Five Years

62	0	62	c) Significantly increase	35	a) Will remain the same	1	1.61
					b) Moderately increase	26	41.94
					c) Significantly increase	35	56.45

Impact of Personalized Marketing on Sustainable Business Development

62	0	62	e) Significantly improve	21	b) no significant impact	4	6.45
					c) Slightly improve	17	27.42
					d) Moderately improve	20	32.26
					e) Significantly improve	21	33.87

Impact of Data-Driven Marketing on Long-Term Growth and Sustainability

62	0	62	b) Moderately	36	a) Not at all	3	4.84
					b) Moderately	36	58.06
					c) Extremely	23	37.10
Extent of Implementing AI and ML in the Next Five Years							
62	0	62	c) Significantly increase	35	a) Will remain the same	1	1.61
					b) Moderately increase	26	41.94
					c) Significantly increase	35	56.45

Table 1 Descriptive Statistics derived by XLSTAT (Qualitative data)

Source: Own compilation based on self-study

Organizational Characteristics and Resource Allocation

The findings in Table 1 reveal a diverse representation across organizational sizes, with 30.6 percent from small corporations, 33.9 percent from medium-sized corporations, and 35.5 percent from large corporations. This distribution underscores the broad applicability of the study's insights across various organizational scales, each facing distinct challenges and opportunities in implementing data-driven strategies.

Investment in Data-Driven Initiatives

Regarding resource allocation, a substantial portion of organizations demonstrates a strong commitment to data-driven marketing:

In Table 1, the data shows that a significant 46.8 percent of respondents allocate between 10 percent to 25 percent of their marketing budget to data-driven initiatives, highlighting substantial investment in leveraging data for strategic marketing decisions. Moreover, 25.8 percent allocate between 25 percent to 50 percent, and 12.9 percent allocate 50 percent or more, indicating a progressive reliance on data analytics to drive marketing effectiveness and operational efficiency.
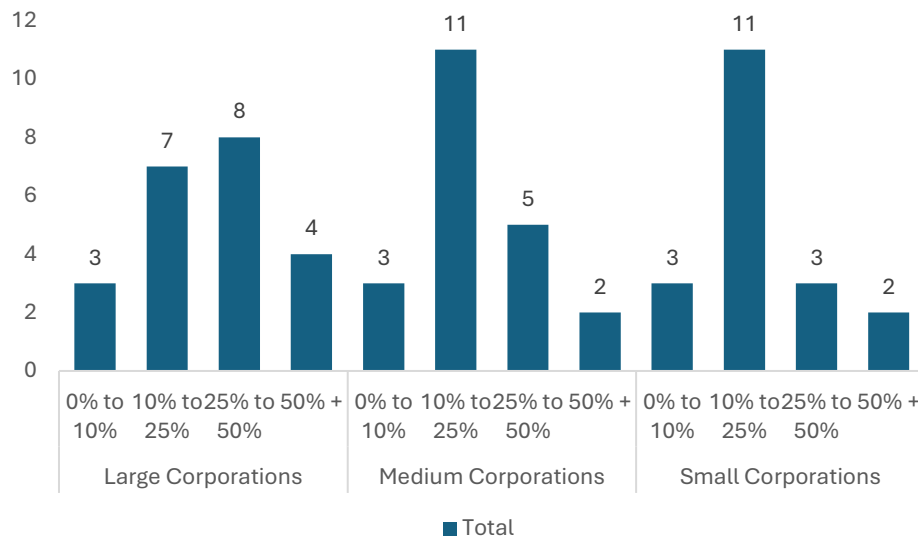
Figure 2 Bar chart of Count by Type of Corporation by Percentage of marketing budgets allocated to data-driven initiatives in a company

Source: Own compilation based on self-study

Figure 2 illustrates a growing emphasis on data-driven marketing across all types of corporations, regardless of their size and budget scope. This trend underscores the recognition that leveraging data can enhance marketing effectiveness and drive business success.

Large corporations (500+ employees) show significant investment in data-driven initiatives, with peaks at 25 percent to 50 percent and 10 percent to 25 percent of their marketing budgets. Medium corporations (51-500 employees) adopt a cautious approach, focusing primarily on allocating 10 percent to 25 percent of their budget to data-driven marketing projects. Small corporations (1-50 employees) also prioritize data-driven marketing, primarily investing within the 10 percent to 25 percent budget range, emphasizing its effectiveness in providing valuable insights and customer data compared to traditional marketing methods.

Overall, larger corporations tend to adopt a more comprehensive approach, likely supported by robust planning and resource allocation strategies. Medium and small corporations, while equally recognizing the importance of data-driven strategies, adjust their investments to align with their scale and operational capabilities. Implementing data-driven marketing strategies improves marketing outcomes, enhances operational efficiencies, and supports sustainability goals. It enables organizations of all sizes to adapt more effectively to changing market dynamics and customer preferences.

Effectiveness and Sustainability Goals

In addressing sustainability objectives, the study gauges the perceived effectiveness of data-driven marketing strategies:

Effectiveness of Data-Driven Marketing Strategies in Achieving a Company's Sustainability Goals: In Table 1, while 9.7 percent of respondents perceive no impact, a significant majority (90.3 percent) acknowledge varying degrees of effectiveness.
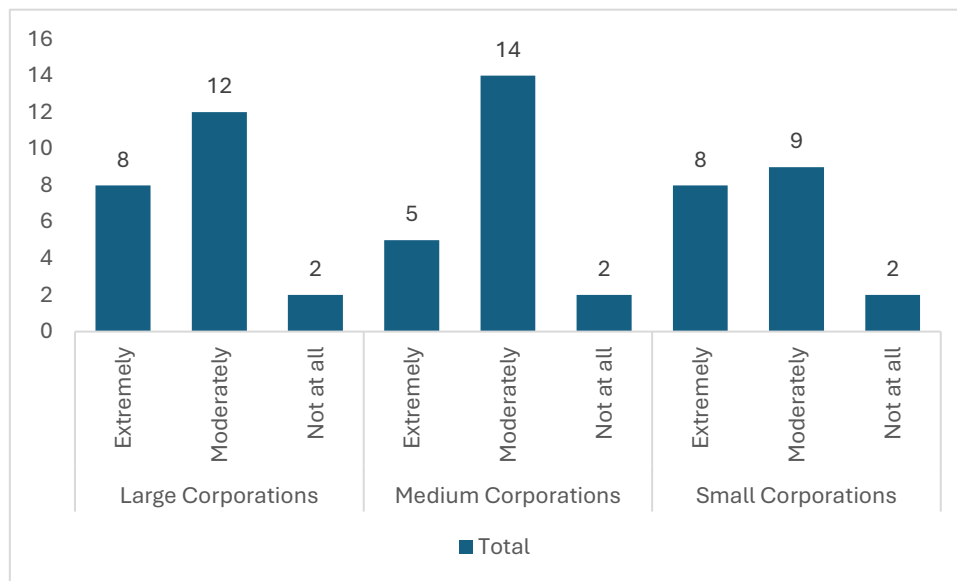

Figure 3 Bar Graph of Count by Type of Company by Effectiveness of Data-driven Marketing Strategies in Achieving Company's Sustainability Goals

Source: Own compilation based on self-study

The bar graph in Figure 3 shows the effectiveness of data-driven marketing methods in achieving sustainability goals across different company sizes: Large Corporations: 12 respondents rate data-driven marketing as moderately effective, 8 find it extremely effective, and 2 find it not effective at all. Medium Corporations: 13 respondents find data-driven marketing moderately effective, 5 find it extremely effective, and 2 find it not effective at all. Small Corporations: 9 respondents rate data-driven marketing as moderately effective, eight find it extremely effective, and two find it ineffective.

Overall, the graph indicates that data-driven marketing strategies are perceived as moderately effective across all company sizes, with large corporations showing the highest belief in their extreme effectiveness. There is a consensus on the value of these strategies, although

improvements are needed to maximize their impact on sustainability goals, particularly among medium and small corporations. In Table 1, 56.5 percent rate the impact as moderate, and 33.9 percent consider it extremely effective. This underscores the potential of data-driven approaches to align marketing efforts with broader sustainability initiatives, which are crucial for creating business models that are not only profitable but also socially and environmentally responsible.
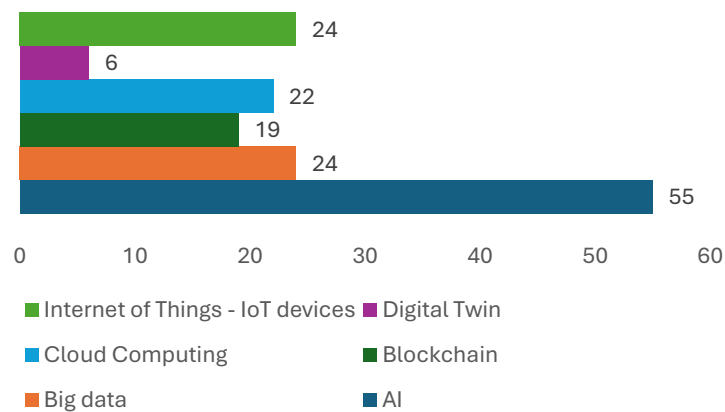
Future Trends: AI and Predictive Analytics

Figure 4 Bar Graph of Anticipated Importance of Emerging Data Sources for Future Data-Driven Marketing.
Source: Own compilation based on self-study

The bar graph in Figure 4 illustrates the anticipated importance of various emerging data sources for future data-driven marketing across different company sizes. AI is the most frequently mentioned technology, with 55 mentions, highlighting its significant role in predictive analytics and overall marketing strategies. Both the Internet of Things (IoT) devices and big data share equal importance, with 24 mentions each, underscoring their contributions to generating actionable insights and improving operational efficiency. Cloud computing follows with 22 mentions, emphasizing its relevance in data storage and processing capabilities. Blockchain technology, with 19 mentions, reflects growing interest in secure data management, while Digital Twin, with 6 mentions, indicates its emerging but less prioritized role. Overall, the graph underscores AI's dominance and the diversified focus on various advanced technologies to enhance marketing effectiveness.

Extent of Implementing AI and ML in the Next Five Years: In Table 1, 56.5 percent of respondents anticipate a significant increase in AI and ML utilization. This forward-looking approach reflects a strategic shift towards leveraging advanced technologies to enhance data analytics capabilities, refine personalization strategies, and enable more informed, data-driven decision-making.

The comparative analysis between our data and the literature reveals several converging and diverging points in the domain of data-driven marketing strategies and sustainable business development. Our study underscores the widespread adoption of data-driven marketing strategies across various organizational sizes, with a significant proportion of large corporations investing heavily in these initiatives, aligning with existing research that highlights the scalability and resource allocation advantages of larger firms (Nuccio & Guerzoni, 2019). Medium and small corporations also prioritize data-driven marketing, albeit within more modest budget ranges, echoing challenges noted in the literature regarding resource constraints faced by SMEs (Sihvonen & Weck, 2022).

Our findings indicate a substantial commitment to data-driven initiatives, with 46.8 percent of organizations allocating 10 percent to 25 percent of their marketing budgets to these strategies. This aligns with the broader trend of increasing investments in data analytics to enhance marketing effectiveness, as highlighted by Gabelaia (2024). Moreover, the perceived effectiveness of data-driven marketing in achieving sustainability goals, acknowledged by 90.3 percent of respondents in our study, resonates with the literature's emphasis on the strategic alignment of marketing analytics with sustainability objectives (Boons & Lüdeke-Freund, 2013).

The anticipated significant increase in AI and ML utilization over the next five years, identified by 56.5 percent of respondents, underscores the strategic shift towards advanced technologies, corroborating the literature's emphasis on AI's pivotal role in enhancing data-driven decision-making (David Iyanuoluwa Ajiga et al., 2024). This forward-looking perspective is crucial for refining personalization strategies and enabling more informed, data-driven decision-making, as echoed in existing studies (Rosário & Dias, 2023).

The literature also highlights the transformative impact of data-driven marketing on customer engagement and business sustainability. Our study confirms this, with a significant portion of respondents recognizing the positive impact of personalized marketing on sustainable business development. The convergence of these findings with the literature underscores the vital role

of data-driven marketing in aligning business practices with broader social and environmental goals (Reddy, 2024).

However, the literature also points out the challenges of data utilization, such as talent shortages and data silos (McKinsey, 2016), which are not explicitly addressed in our data but remain relevant considerations for future research. The integration of data-driven marketing strategies with corporate sustainability initiatives presents a comprehensive approach to achieving long-term growth and sustainability, aligning with the broader trend of embedding environmental considerations into core business strategies (Klettner et al., 2014).

In conclusion, our findings reinforce the critical role of data-driven marketing in fostering sustainable business practices across organizations of all sizes. The alignment of our results with existing research highlights the growing recognition of the strategic value of data analytics in achieving sustainability goals and the anticipated future reliance on advanced technologies like AI and ML to drive further advancements in this field.

Conclusion

In conclusion, this research highlights the critical importance of sustainability in corporate development, emphasizing how data-driven marketing strategies are reshaping modern business landscapes. The study reveals that a sustainable business strategy is increasingly dependent on the effective utilization of marketing analytics, digitalization, and technological integration. Organizations can optimize their marketing performance and customer engagement by implementing tailored data strategies while simultaneously addressing sustainability goals. The research underscores the transformative power of AI and machine learning in predictive analytics and operational streamlining, demonstrating their effectiveness across various organizational sizes in achieving sustainability objectives. The projected increase in AI and ML adoption signifies a strategic shift towards leveraging advanced technologies for enhanced personalization and more informed decision-making. Importantly, the study illustrates how personalized marketing approaches boost customer engagement and play a pivotal role in supporting sustainability initiatives, thereby contributing to both profitability and environmental responsibility. This dual impact underscores the evolving significance of data-driven methodologies in creating competitive advantages and fostering sustainable practices globally, ultimately culminating in a holistic marketing strategy that aligns business growth with environmental stewardship.

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