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Unlocking the future: integrating data- driven business models for business sustainability

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ABSTRACT

This paper examines the expanded function of business models in promoting organisational sustainability, emphasising their significant influence on strategic management and enduring environmental and economic viability. This study employs a comprehensive literature analysis to analyse data-driven business models and their congruence with Sustainable Development Goals (SDGs), emphasising the significance of technology, innovation, and sustainability in contemporary business practices. The results demonstrate that sustainable business models promote economic growth, responsible consumption, and industry innovation while also making substantial contributions to environmental stewardship. The study specifically examines the Sustainable Development Goals of Decent Work and Economic Growth (Goal 8), Industry, Innovation, and Infrastructure (Goal 9), Responsible Consumption and Production (Goal 12), and Partnerships for the Goals (Goal 17). The study indicates that incorporating sustainability into business model innovation is essential for strategic success in the contemporary corporate environment. Sustainable business models are essential for organisations seeking to excel in environmental and social governance while ensuring economic success. This strategic integration revolutionises conventional business methods, guaranteeing that organisations not only endure but flourish by adjusting to global challenges and shifts in the economic environment.

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Introduction

In the age of swift technological progress and heightened environmental awareness, the incorporation of sustainability into business strategies has become imperative rather than optional. This transition is essential for tackling urgent environmental issues and securing long-term organisational resilience and success. The emphasis on sustainable business practices has been heightened by the worldwide commitment to the Sustainable Development Goals (SDGs), which promote responsible production, economic growth, and environmental stewardship. Nonetheless, despite broad acknowledgement of their significance, the efficient incorporation of these techniques into current corporate frameworks continues to be a complicated and demanding undertaking, especially within the realm of developing data-driven business models.

This research is significant for its capacity to connect theoretical sustainability models with actual implementation in the evolving realm of digital business models. As organisations increasingly depend on data to inform decision-making and foster innovation, it is essential to comprehend how these data-driven methodologies may be synchronised with sustainability goals. Scholarly debate primarily focusses on the efficacy of these models in practical applications and their capacity to achieve both commercial and environmental objectives efficiently. Current debates are polarised; some researchers endorse the revolutionary potential of digital and data-driven models for sustainability, while others warn against overestimating their influence without significant alterations in corporate governance and strategy.

This study asserts that the intentional incorporation of sustainability into data-driven business models is both viable and advantageous for long-term organisational performance. It posits that enterprises that skilfully integrate sustainability into their data-driven

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strategies can get superior economic, social, and environmental results compared to those utilising conventional techniques. This idea will be examined through extensive literature surveys and thoroughly analysed in the concluding sections of the study.

This paper aims to explore the relationship between data-driven business models and sustainability through the following research questions:

i. How can data platforms be leveraged to foster collaboration, innovation, and long-term growth in a dynamic digital ecosystem?
ii. How do data-driven business models support organizational sustainability and contribute to achieving Sustainable Development Goals (SDGs)?
iii. What are the key challenges and opportunities associated with transitioning from traditional business models to data-driven and data platform business models in the digital economy?

The research paper is structured as follows: Following this introduction, the literature review explores both theoretical and empirical research, elucidating the relationship between theory and the practical implementation of sustainable data-driven business models. This is succeeded by a comprehensive account of the research methodology that supports our systematic literature review. The following parts provide the analysis and conclusions from the study, culminating in a discussion of the implications for corporate practice and policy. The report finishes by encapsulating the principal findings, providing suggestions for future research, and delineating the limits of the present study.

Literature Review

Knowledge Review

Data-driven business models

Koivuniemi (2020) defines data-driven business models as using data and analytics to drive strategic goals and operational processes. Data-driven business models use data as a primary resource. These models entail using data as an asset within businesses and frequently exchanging data with others to extract more value and knowledge that can be obtained internally. Data sharing is a critical component of data-driven business models, enabling firms to improve data quality, efficiency, and the development of new applications and services (Schweihoff, Jussen, Dahms, Möller & Otto, 2023). According to Szalkowski & Mikalef (2023), data-driven business models use data to make informed decisions and drive initiatives. Malik (2024) highlights integrating data-driven business models into organizational decision-making and sustainability. While his focus is on the Internet of Things (IoT), the emphasis on data-driven approaches aligns with the broader need for sustainable organizational practices. These models prioritize data gathering, analysis, and usage to generate insights and improve business operations. Data-driven models are essential for understanding digital platform user behaviour, preferences, and trends. As an alternative to conventional model-based approaches, data-driven techniques have gained popularity in the analysis and control of systems (Szalkowski & Mikalef, 2023).

With the increasing importance of big data and analytics in modern business landscapes, data-driven business models have become critical for organizations using data to drive innovation and value creation (Fruhwirth, Ropposch & Pammer-Schindler, 2020). These business models are fundamental because of their innovative potential for businesses across different industries, and the models highlight the strategic use of big data and analytics to promote innovation, establish a competitive advantage, and fuel business growth (Fruhwirth et al., 2020). They drive business growth while emphasizing the need to incorporate data into business models for companies seeking strategic change and innovation (Troisi, Visvizi & Grimaldi, 2023). Gathering businesses from this perspective, data is a critical resource for redefining value proposition, creation, and capture (Troisi et al., 2023). Data is, therefore, an asset, and analytics are essential activities that guide decision-making and strategy-building.

However, adopting data-driven initiatives has significant operational issues, such as developing strong data governance structures, developing a data-driven organizational culture, and managing privacy concerns (Fruhwirth et al., 2020). For example, firms such as SESCOM Group used traditional techniques to deliver services in the Facility Management market, focusing on customer segmentation, value propositions, and revenue streams (Marcinkowski & Gawin, 2021). However, as technological exposure grows and data becomes more available, businesses see the value of leveraging data to improve their offers and generate new revenue, and this results in the emergence of data-driven business models in which data products and analytics are critical in producing value for customers and optimizing business procedures (Marcinkowski & Gawin, 2021). The need for data-driven models in modern corporate environments can be seen particularly in innovative hospitality ecosystems. Data-driven models are critical instruments for strategic transformation and innovation, allowing firms to use data as a fundamental resource in redefining value-generating processes. Furthermore, data-driven models help businesses remain flexible and adaptable to market changes by encouraging a culture of ongoing development and innovation (Troisi et al., 2023). While examples from major corporations such as Google, Facebook, and Uber illustrate the potential of data-driven approaches, traditional businesses must surmount distinct challenges and devise strategies tailored to their unique contexts to capitalize on the benefits of data-driven business models fully (Fruhwirth et al., 2020). Through workshops, feasibility studies, and field testing, companies have evolved their business models to include data management policies,

marketing strategies, and Business Intelligence Competency Centers, allowing them to use data to drive innovation, improve efficiency, and achieve long-term growth (Marcinkowski & Gawin, 2021)

Data-driven models have evolved in response to technological innovations and shifting business landscapes. Initially, business models relied heavily on traditional decision-making and strategy-building techniques, with little access to data-driven insights; however, as digital technologies became more prevalent and data collection increased rapidly, businesses began to see the value of data as a strategic asset (Fruhwirth et al., 2020). This transition signalled the birth of data-driven models, which rely on big data and analytics to inform decision-making processes and drive business strategy. The relevance of data-driven initiatives has grown as firms attempt to gain a competitive advantage by leveraging data to streamline their operations, customize consumer experiences, and identify growth opportunities (Fruhwirth et al., 2020). Businesses have long recognised data's potential as a strategic tool for creating value and innovation, and the evolution of data-driven models can be traced back to the early stages of digital transformation when organizations began using technology and data analysis in their operations to obtain insights and make better decisions. The idea gained traction with the introduction of big data analytics, which allowed businesses to collect, analyse, and capitalise on massive amounts of data for strategic goals (Troisi et al., 2023). Moreover, data-driven business models improve decision-making, efficiency, increased profitability, better consumer insights, and the ability to quickly adjust to changing market conditions (Koivuniemi, 2020).

However, there are several barriers to business model adoption, such as the requirement for qualified human resources, data security concerns, and proper integration of technology with business strategy (Troisi et al., 2023). Nevertheless, adopting data-driven initiatives is not without its challenges. Establishing strong data governance structures to assure data quality, security, and compliance with regulations is essential. Businesses must navigate regulatory requirements and address privacy concerns to ensure ethical and responsible data usage. However, overcoming these challenges allows companies that effectively implement data-driven models to secure a competitive advantage by enhancing decision-making, optimizing processes, and fostering innovation (Troisi et al., 2023). Fostering a data-driven business culture and effectively managing privacy concerns are essential. Despite these challenges, companies implementing data-driven models can reap substantial benefits, including improved efficiency, enhanced effectiveness, and greater competitiveness in the digital era. By leveraging data insights responsibly, these businesses are better positioned to innovate, streamline operations, and achieve long-term success in an increasingly data-centric marketplace (Fruhwirth et al., 2020).

Data-platform business models

According to De Reuver, Agahari, Abbas & Zuiderwijk (2022) data platform business models entail developing and operating platforms that allow for the sharing and exchanging business data via data marketplaces. These platforms enable data sharing among businesses and users, resulting in new data products and services. Data platforms are digital ecosystems designed to leverage technologies such as the Internet of Things (IoT) and machine learning (ML) to enhance productivity, sustainability, and decision-making, and these platforms serve as hubs for various stakeholders (Borrer & Borrero, 2022). These platforms collect, structure, and make available massive volumes of industrial data generated by sensors and human-machine interfaces (Lacroix, Ostermeyer, Le Duigou, Bornard, Rival & Eynard, 2023). The rise of the fourth industrial revolution and the increasing digitization of industries have fueled the demand for data platforms to handle the growing amount of data and unlock its potential value. These platforms address data capturing, storage, and analysis issues by providing structured, cloud-based architectures that interact with outdated systems and allow replicating existing applications (Lacroix et al., 2023).

Business models for data platforms are designed to address several issues, including data-sharing decisions, platform openness, governance structures, and value creation models (Kraus, Roig-Tierno & Bouncken, 2019). According to Zhao, Von Delft, Morgan-Thomas, and Buck (2021), data platform business models have increasingly become essential for creating and capturing value in recent years. The emergence of platform business models in a competitive context requires complexity in design, invention, and imitation to generate intricate systems of activities (Zhao, 2020). The authors stress the importance of innovation and imitation in business model development for platform businesses. They argue that relying exclusively on either innovation or imitation could jeopardize the long-term sustainability of the business. A balanced approach incorporating both mechanisms is essential for platform businesses to adapt, evolve, and thrive in a competitive environment. Without this balance, the ability to innovate or appropriately adapt to competitors may hinder growth and compromise future success, they stated. Data platform business models are increasingly common in the modern economy, replacing traditional pipeline business models. These platforms leverage digital technologies to establish networks connecting people, organizations, and resources, thereby facilitating value creation (Rohn, Bican, Brem, Kraus & Clauss, 2021). Unlike traditional models, data platforms, which depend on linear value chain activities, enable direct interactions and transactions that produce value and spur economic growth in interactive ecosystems. The capacity of data platform business models to effectively link users without requiring substantial physical infrastructure or control over limited resources is credited with their success (Rohn et al., 2021).

The literature on data platform business models includes a wide range of topics, for example, data commodity development, business data sharing via data markets, data product pricing, platform openness, and the impact of platform architecture on value creation (De Reuver et al., 2022). The authors further explored the significance of platform boundary resources, examining how they influence the value creation model in IT service platforms. They also investigated the impact of architectural openness on mobile software platforms, emphasizing that platform openness fosters collaboration and innovation. Open architectures can enhance platform flexibility, scalability, and long-term sustainability by allowing external contributions. This examination highlights how these

elements enable platform ecosystems to drive value creation and adapt to changing technological and market environments. Zhao et al. (2020) explore the design of interconnected and interdependent activities that enable value creation and capture. Data platforms are intended to match producers and consumers, generating positive externalities that increase the value of participation on both sides of the market. Key components of data platform business models include platform technology and network externalities, which play an essential role in facilitating interactions and value creation (Rohn, Bican, Brem, Kraus & Clauss et al., 2021). The design of data platforms focuses on supporting digital transformation, developing appropriate platform structures, and cultivating a start-up culture to drive success and competitiveness (Rohn et al., 2021).

Data platform business models differ from traditional business models in prioritizing platform-to-platform openness, network effects, and governance structures to facilitate data sharing and collaboration (De Reuver et al., 2022). Open and closed platforms are viewed as more vulnerable to competition while providing chances for innovation and considerable societal influence. According to (De Reuver et al., 2022), the success of data platform business models is determined by platform maturity, market position, and absorptive ability, emphasising the importance of ongoing evaluation and modification. Data platform business models involve intricate relationships among activities to facilitate economic exchanges between multiple user groups. Platforms with loosely coupled activity systems prioritizing basic designs become less competitive. Rohn et al. (2021). emphasize that data platforms allow direct transactions, lower fixed costs, and increase customer interaction, undermining established players' supremacy. Data platform business models show higher performance and scalability by utilising digital technology and network effects, emphasising the significance of adopting digital transformation and new business strategies in today's dynamic market scenario (Rohn et al., 2021).

With the development of digitalization, and specifically the growing importance of data as a key component in production, new business paradigms have developed, and this evolution resulted in the concept of AI-enabled data platforms, which created a significant shift towards using external data to create value (Malik, 2024). These platforms are the main hubs for gathering massive volumes of transactional data and using powerful artificial intelligence (AI) techniques to extract insights and aid decision-making (Malik, 2024). The rise of data platforms has been traced back to the growth of industrial processes and the adoption of digital technology in manufacturing. Historically, industries have generated massive amounts of data on the shop floor using sensors and human-machine interfaces without an organized system to maximize its potential. The rise of the fourth industrial revolution and the promise of a data-driven age stressed the importance of proper data management (Lacroix et al., 2023). The authors further stated how the emergence of data platforms reflects the broader trend of digital transformation in industries, highlighting the significance of centralising data management to maximize its potential for driving innovation and efficiency. AI-enabled data platforms provide new possibilities for creativity and collaboration in the digital economy by bridging traditional organizational barriers and enhancing value-creation processes (Milkau, 2019).

The rise of data platforms creates challenges and opportunities for industries transitioning to a data-driven model. On the one hand, data platforms have great potential for value creation by providing personalized recommendations, predictions, and coordination across complex networks of stakeholders. These platforms can speed up innovation, improve decision-making, and boost collaboration in the digital economy by leveraging vast quantities of external data and using advanced artificial intelligence systems (Milkau, 2019). Data platforms can accelerate data management operations by creating structured ecosystems for gathering, organizing, and evaluating industry data. Organizations can enhance data governance by centralizing data management processes and ensuring data activities align with company goals (Lacroix et al., 2023). Furthermore, data platforms enable the design of universal applications and replicating previous systems, which supports industry-wide innovation and efficiency. Advanced analytics techniques, such as big data analytics, can help companies gain significant insights from their data, resulting in better decision-making and a competitive advantage (Lacroix et al., 2023).

However, the growth of data platforms poses equal challenges. Amongst these is the need to manage and protect sensitive data while addressing privacy, security, and data ownership concerns (Milkau, 2019). Additionally, establishing the compatibility between many platforms and data sources is a major technical problem, and specific platforms' monopolistic characteristics and the concentration of power across substantial firms raise doubt about market competition and equal access to data-driven insights (Milkau, 2019). Another significant problem is managing the increasing amount of data provided by shop-floor sensors because the overflow of data burdens existing storage infrastructures and makes it difficult to assess and obtain helpful information effectively (Lacroix et al., 2023).

In today's business setting, data platforms have emerged as significant areas of discussion and innovation, and understanding the unique characteristics and connections through different business models is becoming increasingly important as firms navigate the challenges of the digital age (Komljenovic, 2021). At the forefront is the data-driven business model, which stands on the strategic use of data analytics to inform decision-making processes and bring about innovation (Tseng, Tran, Ha, Bui & Lim, 2021). Data-driven companies know the potential insights hidden within massive amounts of data and use advanced analytical tools to extract useful information. By leveraging the power of data, these companies gain a competitive advantage in areas ranging from consumer segmentation and targeting to operational efficiency optimization (Cantamessa, Montagna, Altavilla & Casagrande-Seretti, 2020). In conjunction with the rise of data-driven business models is the emergence of data platforms as critical infrastructure for harnessing the power of data (Wiener, Saunders & Marabelli, 2020). Data platforms serve as foundational elements, providing the necessary infrastructure and tools for collecting, storing, processing, and analysing data from disparate sources, and by integrating data from

internal and external sources, data platforms enable organizations to retrieve insights, fuel innovation, and drive informed decision-making (Wiener et al., 2020). Moreover, data platforms facilitate data sharing, collaboration, and monetization across ecosystems, fostering a culture of openness and agility in the digital era.

The interconnectedness of these business models for business sustainability is evident in their complementary roles and capabilities. Data-driven organizations rely on data platforms to access, manage, and analyse data effectively, empowering them to make informed decisions and drive innovation (Fast, Schnurr, & Wohlfarth, 2023). Data platforms serve as enablers for data-driven decision-making and platform-based interactions, providing the infrastructure and tools necessary to harness the full potential of data.

Table 1: Comparison of traditional vs. data-driven vs. data platform business models

Aspect	Tradition business models	data-driven business models	Data platform business models
Primary resource	Physical assets, capital, and human resources	Data and analytics	Data and digital ecosystems
Value proposition	Product or service quality, cost efficiency	Innovation through data insights	Facilitating data sharing and collaboration
Operational focus	Cost-cutting, efficiency, market share	Informed decision-making, customer personalization	Data integration, network effects, scalability
Challenges	Market saturation, competition, and resource limitations	Data governance, privacy concerns, and integration	Data security, platform openness, and compatibility

Source: Author's work

Business sustainability

The notion of integrating sustainability into business models has gained significant attention in recent years, driven by the importance of addressing environmental challenges and stakeholder expectations. Rooted in the expanding global consciousness surrounding environmental issues, sustainability has become paramount, necessitating a paradigm shift in organizational operations. Sustainable Business Models (SBMs) are not merely adaptations of conventional business models but rather holistic frameworks that integrate sustainability principles into every facet of organizational functioning (Bocken, Short, Rana & Evans, 2014). While prior studies, such as those by Bohnsack, Pinkse & Kolk (2014) have made strides in explaining SBMs, they often fall short of comprehensively capturing all essential dimensions.

The synthesis of existing literature reveals SBMs to be multifaceted constructs, embracing triple-bottom-line environmental, social, and economic considerations. Such models aspire to generate financial returns and foster societal and environmental benefits while mitigating undesirable externalities. The distinctiveness of SBMs lies in their emphasis on stakeholder value creation, non-financial value propositions, and acknowledgement of value destruction and uncaptured potential (de Pádua Pieroni, Pigosso & McAloone, 2018).

As the business landscape evolves under the influence of Industry 4.0, traditional models relying solely on efficiency and cost-cutting measures are proving inadequate. This insight from Schwab (2017) stresses the necessity for innovative approaches.

The rise of sustainability has propelled the evolution of Sustainable Business Models (SBM), which integrate sustainability principles into value propositions, creation, and capture (Gebauer & Saul,2014). Sustainability, understood as the harmonious amalgamation of economic viability, social inclusivity, and environmental resilience, is the bedrock for Circular Economy (CE) implementation (Geissdoerfer, Savaget, Bocken & Hultink, 2017). Circular , Economy emerges as a pivotal point in sustainability efforts, offering practices that foster more sustainable operations within organizations. Rossi, Bertassini, dos Santos Ferreira, do Amaral & Ometto (2020) stress the need to develop circularity indicators, particularly at the micro-level for companies and products, to gauge the innovations ushered in by CE. By emphasizing the interplay between CE, SBMs, and sustainability dimensions, the study underscores the transformative potential of CE in ushering organizations towards a more sustainable trajectory. However, the efficacy of these indicators hinges on addressing data accessibility challenges and fostering a robust culture of transparency and accountability within organisational ecosystems.

Sustainable business model innovation (SBMI) involves developing new business models and transforming existing ones towards sustainable development goals (Loorbach & Wijsman, 2013) . It aims to predict societal changes and respond to sustainability issues through innovative solutions [2]. Yet, while SBMI offers potential for sustainable business development, its conceptualization remains embryonic, with the need for a unified framework that differentiates it from related fields like business model innovation (Lüdeke-Freund & Dembek, 2017).

There is a need to understand Sustainable Business Models (SBMs) in a more detailed way. Goni, Gholamzadeh Chofreh, Estaki Orakani, Klemeš, Davoudi & Mardani (2021) developed a framework representing a crucial move to closing existing gaps by explaining nine key features essential for robust SBMs, which include sustainability, circular economy, information technology, value chain optimisation, core values, value creation, organisational values, performance management, and stakeholder engagement, the framework provides practitioners with a comprehensive roadmap for sustainable organizational transformation. Moreover,

emphasizing the synergistic interplay between these elements, the framework fosters a holistic understanding of SBMs as dynamic, adaptive systems capable of navigating complex socio-environmental landscapes.

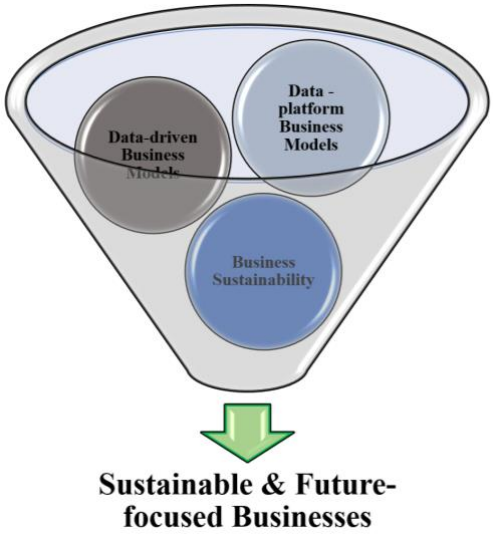


Figure 1: Pathway to future-focused sustainable businesses. *Source:* Author's work

United nations SDG goals (Goals 8, 9, 12 and 17)

According to Bexell & Jönsson (2017, p.13), "In September 2015, the United Nations (UN) General Assembly adopted 17 Sustainable Development Goals (SDGs) after three years of multi-stakeholder consultations and intergovernmental negotiations. The SDGs replaced the Millennium Development Goals (MDGs) by merging the agendas of development and environment". The authors further stipulate how the SDGs steer humanity towards a trajectory of sustainable mindfulness aimed at eradicating poverty, hunger, inequality, degradation, access to education and health care, and building just, peaceful and equitable societies. In their paper published in the Sustainability journal, [5] emphasize the importance of the Sustainable Development Goals (SDGs) in addressing current and future needs. This aligns with the objective of this paper, which focuses on projecting current trends and, in particular, the future direction. The authors also referenced the 2019 United Nations Sustainability Index Institute (UNGSII) report, which indicated that over 85% of the largest 500 corporations allocated budgetary resources to the SDGs and reported their contributions in their annual reports. This aligns with the paper's emphasis on integrating sustainability into workplace practices. This paper aligns with four (4) of the SDGs in the following ways:

Goal 8: Decent Work and Economic Growth—The paper explores how data-driven business models can drive economic growth and innovation, which are central to promoting sustained, inclusive, sustainable economic growth and full and productive employment.

Goal 9: Industry, Innovation, and Infrastructure - The focus on data-driven approaches aligns with building resilient infrastructure, promoting inclusive and sustainable industrialisation, and fostering innovation.

Goal 12: Responsible Consumption and Production - The paper emphasizes sustainability in the context of business models. It aligns with ensuring sustainable consumption and production patterns, particularly how businesses leverage data and digital technologies to optimize resource use.

Goal 17: Partnerships for the Goals - The paper's discussion of data-driven platforms supports fostering partnerships which are crucial for implementing and revitalizing global partnerships for sustainable development.

Table 2: Impact of business models on sustainable development goals (SDGs)

SDG	DATA-DRIVEN MODELS	DATA PLATFORM MODELS
Goal 8: Decent Work and Economic Growth	Enhances productivity and innovation	Drives efficiency and economic growth
Goal 9: Industry Innovation and Infrastructure	Promotes industry innovation through data	Supports industrial digitization and intelligent systems
Goal 12: Responsible Consumption and Production	Optimizes resource use through data insights	Facilitates responsible production and monitoring
Goal 17: Partnerships for the Goals	Encourages data sharing and collaboration	Supports global data collaboration and innovation

Source: Author's work

Findings and Discussions

Integrating data-driven business models and sustainability principles represents a critical advancement in modern business strategies. As this paper has highlighted, leveraging data to enhance decision-making, drive innovation, and improve organizational adaptability is pivotal in addressing economic and environ-mental challenges. By embracing data as a fundamental resource, businesses can align their operations with the Sustainable Development Goals (SDGs), specifically targeting economic growth, industry innovation, responsible consumption, and fostering global partnerships.

The shift from traditional to data-driven and data-platform business models underscores the importance of innovation in value creation and business sustainability. Traditional models, while focused on efficiency and market share, are increasingly becoming inadequate in a digital economy where data is the key driver of competitiveness. Data-driven models offer enhanced personalization and informed decision-making, while data-platform models provide the infrastructure for collaboration, scalability, and network effects. This evo-lution is essential for businesses looking to remain resilient in an increasingly interconnected and dynamic global market.

A recurring theme throughout the literature review is the synergetic relationship between data-driven strate-gies and sustainable business practices. This paper posits that sustainability can no longer be an afterthought in business models. Instead, it must be integrated into organizations' core operational frameworks, enabling them to create value that transcends financial returns by delivering social and environmental benefits. This aligns with the triple bottom line approach, where the emphasis is placed equally on economic, social, and environmental outcomes.

However, the transition to these models is not without challenges. Key barriers identified include data gov-ernance, privacy concerns, and the need for qualified human resources to manage and analyze data. Fur-thermore, businesses must navigate the complexities of integrating these models with existing operations, ensuring they adhere to regulatory standards such as data privacy laws while remaining agile and competi-tive. Overcoming these challenges requires a robust organizational culture that fosters innovation, transpar-ency, and ethical data usage.

The discussion also highlights the importance of data platforms in enabling collaboration and fostering in-dustry-wide innovation. By providing ecosystems that support data exchange and shared insights, these platforms drive responsible consumption and production patterns - key components in achieving SDG 12. Moreover, they promote partnerships, essential for achieving SDG 17, by connecting businesses, stakehold-ers, and consumers in ways that traditional business models could not.

The potential for these data-driven approaches to contribute to industry innovation and infrastructure (SDG 9) is immense. By leveraging big data and artificial intelligence (AI), organizations can optimize resource allocation, enhance production efficiency, and innovate in previously unattainable ways. This represents a significant opportunity for industries to improve competitiveness and contribute meaningfully to global sus-tainability efforts.

This paper emphasizes the critical role that data-driven and platform-based business models play in the fu-ture of sustainable business. These models offer a pathway to enhanced economic performance and a framework for addressing broader societal challenges. As the business landscape evolves, adopting these models will be essential for organizations that aspire to thrive in an increasingly complex, data-driven, and sustainability-focused world.

Conclusion

The initial premise of this study posited that incorporating sustainability into data-driven business models would be both practicable and beneficial for attaining improved economic, social, and environmental results. The systematic literature evaluation and analysis have primarily substantiated this theory. The research findings demonstrate that when linked with sustainability principles, data-driven business models can revolutionise established methods, resulting in substantial improvements in organisational sustainability.

This work enhances academic discourse by demonstrating the effective application of data-driven models in advancing Sustainable Development Goals (SDGs). It clarifies the capacity of these models to stimulate economic growth, encourage industrial innovation, advocate for responsible consumption, and enable strong collaborations for sustainable development. The investigation indicates that the intelligent integration of big data and analytics into company strategy, coupled with a dedication to sustainability, can significantly enhance organisational operations and their societal and environmental effect.

This research significantly contributes by illustrating the synergistic impact of data-driven initiatives and sustainability measures. The findings indicate that the advantages of this integration surpass just economic benefits, fostering a more holistic approach to environmental stewardship and social responsibility. This corresponds with the increasing focus on comprehensive business models that prioritise financial success alongside beneficial impacts for individuals and the environment. Furthermore, the study rigorously evaluates the obstacles and impediments to the implementation of data-driven sustainable business models. It emphasises the necessity for strong data governance, ethical data use, and strategic change management to surmount these challenges. This research provides new insights into the practical complications of implementing sustainability in the digital era, offering assistance for firms seeking to effectively address these challenges.

This research confirms that data-driven business models combined with sustainability principles can substantially improve organisational practices, facilitating a wider shift towards a sustainable business environment. These findings contribute significantly to the scientific comprehension of sustainable business practices and digital transformation initiatives, providing a thorough framework for future research and practical application in the domain.

As we enter the Fifth Industrial Revolution, future research may concentrate on the deeper integration of artificial intelligence (AI) into data-driven business models to augment predictive analytics, automate decision-making, and enhance operational efficiency. Investigating the function of AI in facilitating firms to utilise data platforms for sustainability will yield significant insights into the enhancement of these models.

In South Africa, the Protection of Personal Information Act (POPIA) governs data management and accessibility, underscoring the significance of data governance. As data becomes increasingly integral to business models, concerns around privacy, security, and governance remain paramount. Future studies may explore how organisations reconcile data-driven innovation with ethical issues while ensuring adherence to local and global regulatory frameworks.

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Conflicts of Interest: The authors declare no conflict of interest.

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