

A Systematic Review of Digital Transformation and Business Sustainability

Pooja Saharan^{1*}, Prof. Uma Sankar Mishra²

^{1*}Research Scholar, Dept. of Management (Central University of Rajasthan),
2023phdmba002@curaj.ac.in

²Professor, Dept. of Management (Central University of Rajasthan),
usmishra@curaj.ac.in

Abstract

Digital Transformation is changing how businesses operate in the competitive environment by integrating technology into every department of the organisation to make it more efficient and effective. The firm's long-term ability to survive in a competitive environment is essentially ensured by business sustainability. This paper provides a systematic literature review of the intersection between digital transformation and business sustainability, including social, economic, and environmental aspects. Employing the PRISMA technique and gathering publications from the most recent findings of the Scopus database, the analysis combines the current knowledge in this topic area. The results illustrate the crucial role of digital technologies in fostering sustainable business practices, including enhancing organisational capabilities, promoting environmental sustainability, and strengthening economic stability. The review highlights the complex and interdependent relationship between digital transformation and sustainability. Employing thematic analysis, this review identifies key themes and patterns in literature, offering a comprehensive understanding of the interplay between digital transformation and business sustainability. Digital technologies empower firms to improve their economic, social, and environmental sustainability by enhancing operational efficiency, boosting stakeholder engagement, and reducing ecological sustainability.

Keywords: Digitalization, digital transformation, digital marketing, business sustainability, sustainable business

1. Introduction

In today's fast-paced and interconnected world, businesses are turning to advanced technologies to enhance efficiency, foster innovation, and strengthen customer relationships. Businesses today face the challenge of striking a balance between achieving profitability, practising environmental responsibility, upholding social accountability, and ensuring sustainable growth over the long term. Digital transformation is seen as a precursor to sustainability, helping companies balance economic, environmental, and social impacts to survive the digital revolution (Gomez-Trujillo & Gonzalez-Perez, 2022). It enables businesses to innovate, reduce costs, and enhance their reputation by integrating sustainable practices (Martínez-Peláez et al., 2023). Digital transformation facilitates business model innovation, which is crucial for achieving superior sustainability performance. This includes both economic and environmental dimensions, with network capabilities and digitalisation playing mediating roles (Li et al., 2019; Savastano et al., 2022). Engaging stakeholders is critical in the digital transformation process, as it supports innovation and competitiveness, which are essential for sustainable development (Martínez-Peláez et al., 2023). By digitalizing processes, businesses can significantly improve operational efficiency and business performance, supporting sustainable supply chain management. This integration helps amplify economic, social, and environmental impacts, fostering a sustainable business image and increasing market share (Stroumpoulis et al., 2024). Digital transformation eases knowledge flow barriers, making information more accessible and attracting

skilled personnel, which ultimately helps businesses gather market information on time and react accordingly (Zhang et al., 2022). Digital transformation, when aligned with sustainability principles, positively impacts environmental, social, and economic performance indicators. This alignment ensures long-term sustainability outcomes for organisations (Alojail & Khan, 2023). By incorporating environmentally and socially conscious messaging into their campaigns, digital marketing enables businesses to advance sustainability. This promotes the spread of sustainable goods and services and helps to modify consumer behaviour toward sustainable consumption. Businesses can interact with customers more successfully by using digital platforms to get feedback and promote two-way communication. Due to this interaction, businesses can better understand consumer preferences for sustainable products and modify their strategy (Saura et al., 2020a; Singh & Selvasundaram, 2024). It has been demonstrated that digital marketing for SMEs improves competitive advantage and business performance through cost savings, efficiency, and customer happiness, hence having a beneficial impact on sustainable growth (Bruce et al., 2023; Trueba-Castañeda et al., 2024). Adopting digital technology strategies helps businesses achieve their goals, ultimately resulting in overall business growth and long-term survival. Digital transformation encompasses a wide variety of organizational changes motivated by the use of new technology. These modifications drastically change how companies function and interact with stakeholders, customers, and society. A key component of this change is digital marketing, which aims to transform consumer interactions, provide personalized experiences, and use that information to enhance decision-making. In short, the integration of digital tools and strategies to improve growth, optimize operations, and advance business sustainability in such a way that is becoming more competitive and technologically advanced is what unites digital transformation and digital marketing.

The study yields practical insights for marketers, enabling optimized use of digitization for attaining business sustainability in long-run survival, fostering enhanced customer engagement and competitive edge. Based on a systematic literature review (SLR) and the Theories, Context, Characteristics, and Methodology (TCCM) framework, this study identifies important aspects that improve important knowledge. The integrated TCCM framework offers potential directions for further research and is a useful resource for practitioners and researchers.

The analytical approach of the paper carefully describes the systematic review procedure. The TCCM framework is the result of systematically classifying and summarizing insights from a collection of current literature. A thorough discussion, conclusions, limitations stated, and suggestions for additional research are then presented. This study enhances academic knowledge and gives practitioners the means to make well-informed decisions that promote organizational development by offering practical insights.

2. Literature Review

2.1 Digital Transformation: Digital Transformation (DT) is a complex concept that has gained significant attention in recent years, particularly in the context of business. It involves integrating digital technology into all areas of a business, fundamentally changing how businesses operate and deliver value to customers. Despite its widespread use, a universally accepted definition of DT remains unclear. DT is frequently characterized as an instrument for change in a variety of settings, but especially in the business sector, where it uses technology to impact every aspect of business culture and human life (Kraus et al., 2021). Rapid changes in technology and consumer preferences, as well as uncertain events like covid-19 pandemic, the Russia-Ukraine war, the Israel-Hamas war, the Iran-Israel war, etc., have caused many organizations to rethink their business operations and change strategies, businesses need to adopt the technological changes as soon as possible to survive in this uncertain environment (Knežević & Has, 2024). The process of digital transformation seeks to enhance an organization by causing significant modifications to its characteristics through fusions of computers, communication, information, and related technologies (Vial, 2019). Existing research

suggests that the digital phenomenon presents a chance to innovate and rethink how businesses conduct their operations, despite the constraints associated with digital transformation(Heavin & Power, 2018) Digital transformation is a continuous process of strategic renewal that builds capabilities that update or replace an organization's business model, culture, and collaborative approach using advancements in digital technologies(Warner & Wager, 2019). To successfully achieve digital transformation, businesses must incorporate both digital marketing and digitalization, as these play important roles. Digital transformation goes beyond simply adopting new technologies, it requires a fundamental rethinking of business processes, customer interactions, and strategic approaches. Digital marketing is essential for reaching and engaging customers through online channels such as social media, search engines, and so many other digital channels. It enables businesses to adapt to evolving consumer behaviour, optimize their online presence, and enhance brand visibility. Meanwhile, digitalization focuses on integrating technology into core business operations, improving efficiency, automating processes, and leveraging data-driven insights for informed decision-making (Knežević & Has, 2024). Digital transformation, often known as digitalization, is the study of how digital technologies alter an organization's organizational structure, business model, product offers, and operational procedures. It entails using technology to promote creativity, improve productivity, and open up new potential for expansion and competition(Hess et al., n.d.).

22 Business Sustainability: Business sustainability involves a holistic strategy that incorporates economic, social, and environmental factors into daily operations. It demands forward-thinking strategies and the implementation of sustainable business models, ensuring that companies maintain financial stability while positively impacting society and the environment. Sustainability requires businesses to make decisions that consider long-term impacts, ensuring that resources are available for future generations, businesses that prioritize sustainability focus on responsible practices, optimizing resources, and fostering innovation to fulfil present needs without compromising future generations' needs(Bansal & DesJardine, 2014). This strategy helps strengthen brand credibility, increase customer loyalty, and maintain regulatory compliance, ensuring adaptability in a regularly changing business landscape. By integrating sustainability into their core operations, businesses can achieve long-term success while generating meaningful value for both customers and the organization itself. Evaluating the effectiveness of sustainability initiatives and applying them to different aspects of a business can be a complex task. It requires seamlessly integrating social, environmental, and economic considerations into the firm's overall strategy and day-to-day operations (Ajmal et al., 2018; Tinonetsana & Priscilla Musariwa, 2024; Zarte et al., 2022). Incorporating sustainability into business strategies comes with a range of challenges that organizations must overcome to effectively implement sustainable practices. These challenges are diverse, including raising consumer awareness, managing limited resources, overcoming resistance from stakeholders, staying competitive, complying with complex regulations, and accurately measuring sustainability outcomes (Trizotto et al., 2024), engaging stakeholders effectively is crucial for overcoming these challenges.

3. Methodology

This study follows a systematic literature review (SLR) approach, adhering to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure a structured selection process (Figure 1). A comprehensive search was conducted in the Scopus database using the search query: ("digital transformation" OR "digitalization" OR "digital marketing") AND ("business sustainability" OR "sustainable business"), which retrieved 359 records. After removing duplicates (n=9) and irrelevant records (n = 81), 269 studies remained for screening. The full-text assessment was conducted on 98 papers, of which 32 were excluded, leaving 153 eligible studies. Finally, 51 studies were selected for qualitative and quantitative synthesis. The selection process

applied strict inclusion criteria, considering peer-reviewed journal articles published in English, explicitly addressing the intersection of digital transformation, digital marketing, and business sustainability, and including empirical, theoretical, or systematic reviews. Studies were excluded if they were conference papers ($n = 67$), editorials and review papers ($n = 14$), or articles still in progress

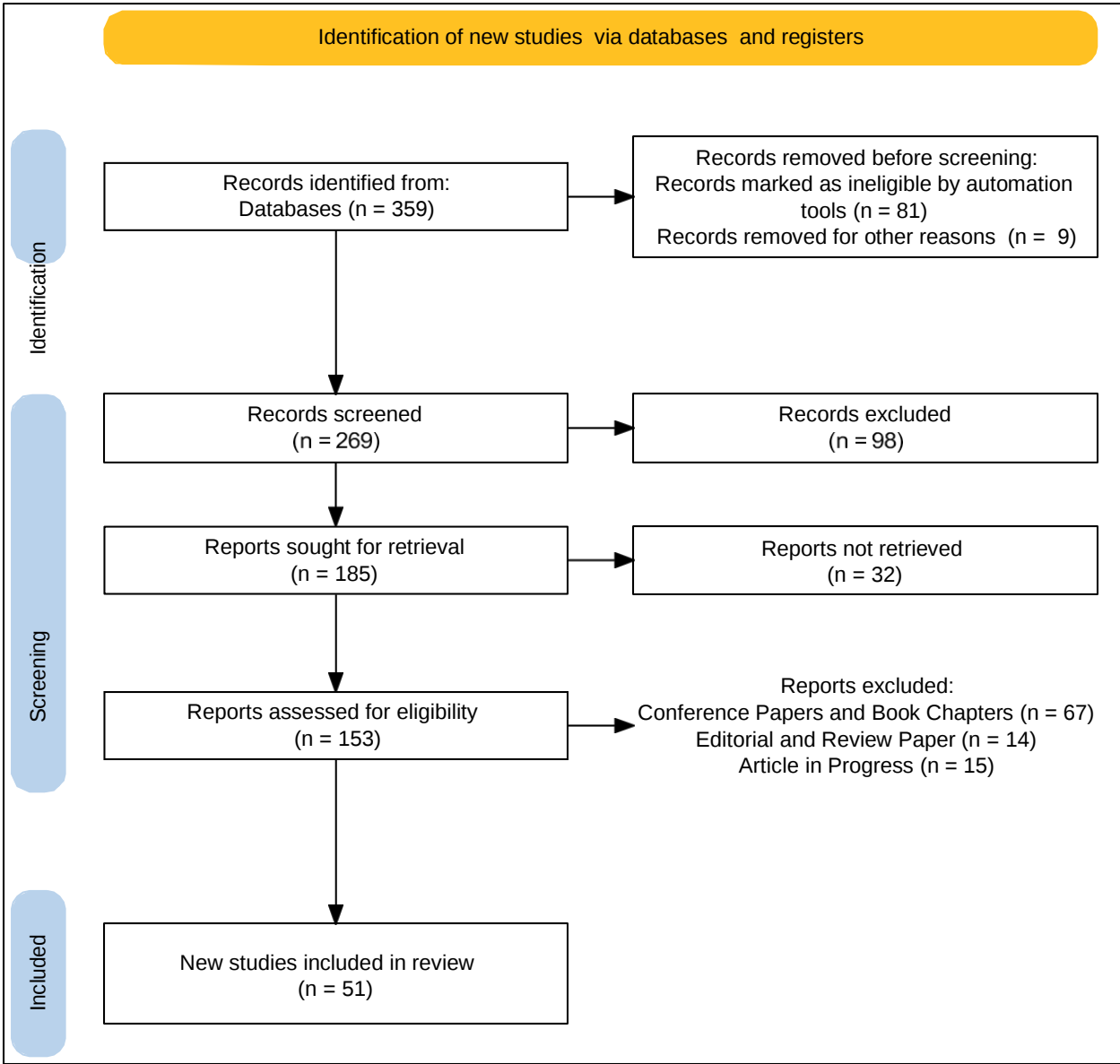
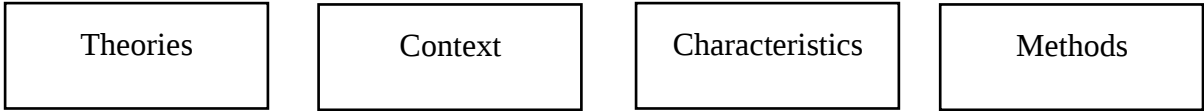


Figure 1. Methodological procedure

($n = 15$), or if they lacked full-text availability or focused purely on technical aspects without sustainability relevance. Additionally, only the latest published articles related to digitalization and sustainability were considered to ensure the inclusion of the most recent advancements and trends in the field. The final set of studies underwent data extraction and thematic analysis, capturing key details such as publication information, study types, methodologies, and findings related to the role of digital transformation in business sustainability. This structured methodology ensures a thorough and systematic synthesis of high-quality research, providing valuable insights into emerging trends.

4. Descriptive review of the literature

This section offers a comprehensive analysis of 51 selected articles, categorizing them based on various attributes to provide an initial overview of the literature.



41 Year of publication and journal outlets

As shown in (Figure. 2) the number of publications on digital transformation and sustainability has shown a gradual increase from 2019 to 2022, rising from 2 to 6, indicating an emerging research interest in the field. The yearly increments were modest, with 2, 1, and 1 additional paper per year, reflecting a steady but slow growth. However, in 2023, there was a sharp surge, with publications jumping from 6 to 16—a nearly 167% increase—suggesting that digital transformation and sustainability had become a major research focus, likely driven by increased digital adoption and sustainability concerns post-pandemic. This spike could be attributed to factors such as increased funding, technological advancements, and a growing awareness of sustainable business practices. The upward trend continued into 2024, with publications reaching 18, though the growth rate slowed compared to the previous year. This sustained increase underscores the rising importance of digital transformation and sustainability in both academia and industry.

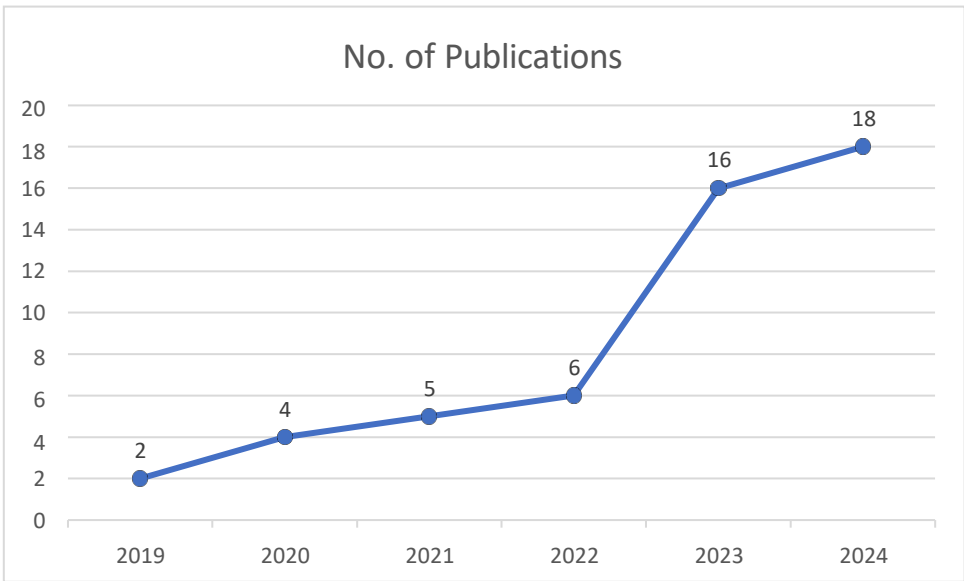


Figure 2. Year-wise Publications

Contributions appeared in 34 articles from Scopus-indexed academic journals, all of high-quality Q2 and above, indicating their high impact and credibility in the academic community. The journal *Sustainability* leads in connecting digital transformation and business sustainability in articles. Other journals, including *Cogent Business & Management* and *Technology in Society*, have made contributions, highlighting a diversified research interest across various journals as shown in Table 1.

42 Geography of study location

The analysis of research contributions on digital transformation and sustainability reveals a strong global presence, with the highest number of articles 13 (Figure. 3) categorized as "Global," indicating

that many studies take an international perspective rather than focusing on a single country. Indonesia leads in country-specific research, contributing 9 articles, which suggests a significant academic interest in this region, potentially driven by rapid digital adoption, government initiatives, and sustainable business innovations. China and the European Union each produced 4 articles, showing notable research activity, while Italy and the United Kingdom followed with 3 articles each. Other countries, including South Korea, Germany, Bangladesh, and broader European studies, contributed 2 articles each.

Journal Title	Scopus Ranking	No. of Articles	Articles' Citation
Sustainability	Q2	14	(Asif et al., 2024; Bhatta et al., 2023; Bican & Brem, 2020; Colombi & D'Itria, 2023; Diez-Martin et al., 2019; Eisner et al., 2022; Farías & Cancino, 2021; Fuerst et al., 2023; Gündüzyeli, 2024; Kim & Ha, 2023; Kurniasari et al., 2023; Moghrabi et al., 2023; Saura et al., 2020b; Zhou & Li, 2024)
Cogent Business & Management	Q2	3	(Astuty et al., 2024; Siswanti, Riyadh, Cahaya, Putra, et al., 2024; Siswanti, Riyadh, Nawangsari, et al., 2024)
Technological Forecasting & Social Change	Q1	2	(Broccardo et al., 2023; Madanaguli et al., 2023)
Journal of Cleaner Production	Q1	1	(Wang & Zhang, 2024)
Technological Forecasting & Social Change	Q1	1	(Dal Mas et al., 2023)
Maritime Policy & Management	Q1	1	(Del Giudice et al., 2022)
Pakistan Journal of Life and Social Sciences	Q4	1	(Leong et al., 2024)
Journal of Ecohumanism	Q4	1	(Islam Bhuiyan et al., 2024)
International Journal of Advanced Computer Science and Applications	Q3	1	(Aghamiri et al., n.d.)
Journal of Information Technology Teaching Cases	Q2	1	(Akarsu, 2023)
Business Strategy and Development	Q2	1	(Ghobakhloo et al., 2024)
Information Systems and Change Management	Q4	1	(Chawla et al., 2023)
Business: Theory and Practice	Q3	1	(Chinakidzwa & Phiri, 2020)
Economic Research-Istraživanja	Q2	1	(Gil-Gomez et al., 2020)
Heliyon	Q1	1	(Chen et al., 2024)

International Journal of Information Management	Q1	1	(Kraus et al., 2022)
Journal of Strategy and Management	Q1	1	(Acciarini et al., 2022)
Studies in Business and Economics	Q3	1	(Ogrean et al., 2024)
Journal of Information Technology Management	Q3	1	(Colabi et al., 2022)
International Journal of Educational Technology in Higher Education	Q1	1	(Dziubaniuk et al., 2023)
Industrial Marketing Management	Q1	1	(Principato et al., 2023)
Geojournal of Tourism and Geosites	Q3	1	(Deb et al., 2024)
Journal of Innovation & Knowledge	Q1	1	(Quttainah & Ayadi, 2024)
International Journal of Data and Network Science	Q3	1	(Purba et al., 2021)
Revista de Gestão Social e Ambiental	Q4	1	(Dhyanasaridewi et al., 2024)
Business Perspectives and Research	Q2	1	(Zahara et al., 2022)
Journal of Infrastructure, Policy and Development	Q2	1	(Salhab, 2024)
Information Systems and e-Business Management	Q2	1	(Sagala & Öri, 2024)
International Journal of Management & Entrepreneurship Research	Q4	1	(Tochukwu Ignatius Ijomah et al., 2024)

Table 1. Journal Title

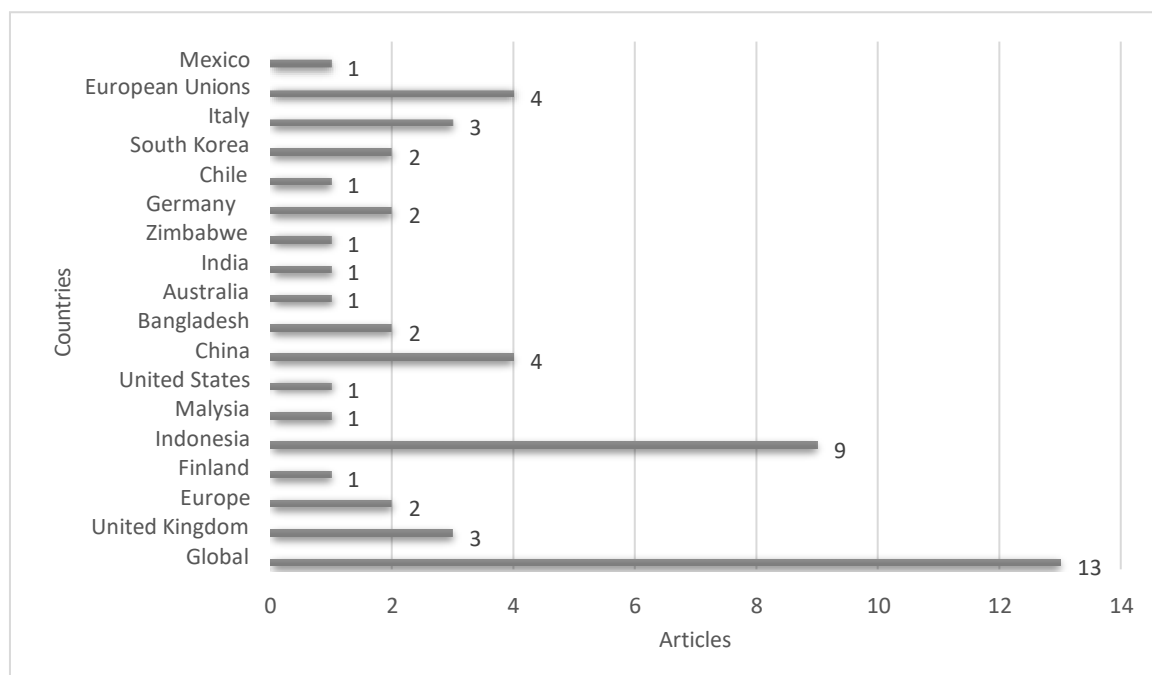


Figure 3. Studied populations

5 Theories, context, characteristics, methodology framework-based analysis of literature review

5.1 Theories Used

The review of the literature identifies a range of theories employed in previous research to analyze the relationship between digital transformation and business sustainability. These theories vary in their focus, from technology adoption and organizational change to sustainability and marketing strategies. The most frequently cited theories include the Resource-Based View (RBV), which examines how firms leverage digital resources for competitive advantage, and the Technology Acceptance Model (TAM), which explains user acceptance of digital transformation. Stakeholder Theory and the Triple Bottom Line (TBL) framework are also prominent, emphasizing the role of various stakeholders and sustainability dimensions (economic, social, and environmental). Other widely used theories include Business Model Innovation Theory, Diffusion of Innovation Theory,

Theory	References
Resource-Based View (RBV)	(Asif et al., 2024; Bhatta et al., 2023; Chen et al., 2024; Chinakidzwa & Phiri, 2020; Dhyanasaridewi et al., 2024; Kurniasari et al., 2023; Quttainah & Ayadi, 2024; Wang & Zhang, 2024)
Technology Acceptance Model (TAM)	(Bhatta et al., 2023; Deb et al., 2024; Del Giudice et al., 2022)
Stakeholder Theory	(Dhyanasaridewi et al., 2024; Siswanti, Riyadh, Cahaya, Prowanta, et al., 2024)
Tripple Bottom Line (TBL)	(Del Giudice et al., 2022; Siswanti, Riyadh, Cahaya, Putra, et al., 2024)
Business Model Innovation Theory	(Aghamiri et al., n.d.; Madanaguli et al., 2023; Ogreaan et al., 2024)
Diffusion of Innovation Theory	(Dal Mas et al., 2023; Dhyanasaridewi et al., 2024)
Resilience Theory	(Astuty et al., 2024; Fuerst et al., 2023)
Digital Transformation Theory	(Leong et al., 2024)
Dynamic Capabilities Theory	(Islam Bhuiyan et al., 2024)
Circular Economy Theory	(Akarsu, 2023)
Institutional Theory	(Ghobakhloo et al., 2024)
Relationship Marketing Theory	(Gil-Gomez et al., 2020)
Consumer Behavior Theory	(Mujianto et al., 2023)
Crisis Management Theory	(Zahara et al., 2022)
Big Data Analytics Framework	(Salhab, 2024)
SME Growth Theory	(Kurniasari et al., 2023)
Sustainable Business Model Theory	(Broccardo et al., 2023)
Corporate Sustainability Theory	(Asif et al., 2024)
Artificial Intelligence Ethics Framework	(Gündüzyeli, 2024)
Digital Marketing Framework	(Deb et al., 2024)
Strategic marketing and innovation Theories	(Tochukwu Ignatius Ijomah et al., 2024)
Gamification Theory	(Colabi et al., 2022)

Connectivism Learning Theory	(Dziubaniuk et al., 2023)
Sociotechnical Systems Theory	(Principato et al., 2023)
Organizational Change Theory	(Zhou & Li, 2024)
Environmental Sustainability Theory	(Eisner et al., 2022)
Bibliometric Theory	(Kraus et al., 2022)
Technology-Organization-Environment-Human Model (TOEH)	(Wang & Zhang, 2024)
Institutional Theory	(Quttainah & Ayadi, 2024)
Technological Innovation Theory	(Quttainah & Ayadi, 2024)
Individual-Environment Interaction Theory	(Zhou & Li, 2024)
Unified Theory of Acceptance and Use of Technology (UTAUT)	(Kurniasari et al., 2023)

Table 2. Theories used in digital transformation and business sustainability

and Resilience Theory, highlighting the impact of digital transformation on business models, innovation diffusion, and organizational resilience. The Dynamic Capabilities Theory and Institutional Theory are applied to understand how firms develop capabilities to sustain digital change. Less frequently cited but still relevant are Circular Economy Theory, Sociotechnical Systems Theory, Organizational Change Theory, and Sustainable Business Model Theory, which provide a broader perspective on business adaptation and sustainable practices. Additionally, Big Data Analytics Framework, Artificial Intelligence Ethics Framework, and Digital Marketing Framework reflect the growing role of advanced technologies in shaping sustainability strategies. The application of these theories underscores a multi-disciplinary approach to digital transformation and sustainability, integrating insights from management, technology, marketing, and environmental studies. This analysis suggests that while traditional business and sustainability theories remain significant, newer frameworks addressing digital and data-driven transformations are gaining traction.

5.2 Context

(Figure. 4) The two largest categories are Books/Book Chapters and Articles indicating that these are the most prominent forms of scholarly work. Conference Papers and Articles in Progress each account for 10%, suggesting a moderate emphasis on ongoing research and conference dissemination. Review Papers, making up 8%, indicate a smaller yet significant portion dedicated to summarizing existing research. The smallest category, Editorials, implies that editorial pieces are the least common among the document types. The chart effectively highlights the dominance of books and articles in academic publishing while also showcasing the presence of ongoing and review-based research contributions. From an industry perspective, the study contextualizes how digital transformation enables sustainable business practices across various sectors, including manufacturing, retail, banking, and SMEs. Geographically, research is highly concentrated in specific regions, with Indonesia, China, and the European Union emerging as key contributors, reflecting their policy-driven digital sustainability efforts (Figure. 3).

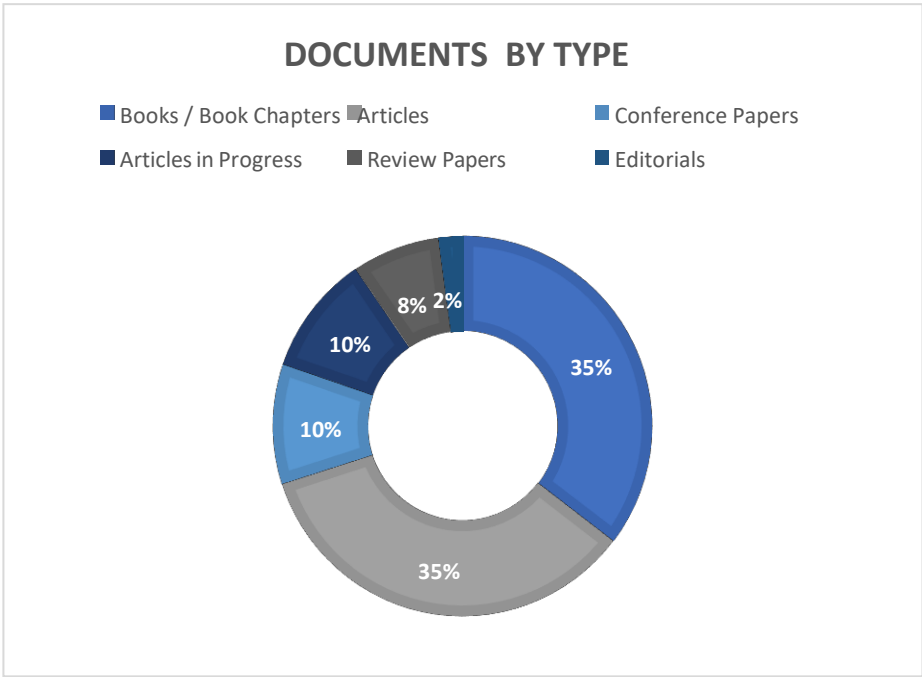


Figure 4. Types of Articles

5.3Characteristics

The study’s multidimensional approach captures various aspects of how digitalization impacts businesses across economic, social, and environmental dimensions.

5.3.1 Multidisciplinary Integration

This study brings together insights from technology, management, and sustainability disciplines, offering a holistic perspective on digital transformation.

5.3.2 Business Sustainability-Oriented ThematicFocus

Unlike general studies on digital transformation, this research uniquely emphasizes sustainability-oriented digitalization, ensuring that technological advancements align with long-term environmental and economic goals.

5.3.3 Empirical and Literature-Based Insights

The research is grounded in an extensive review of peer-reviewed studies, particularly those from Scopus-ranked journals, highlighting how the application of digital tools fosters sustainable business practices.

5.4 Methods

The research methods used in the analyzed studies indicate diverse approaches, as shown in the Figure, 61% (31 articles), are dedicated to Empirical research, indicating that most studies relied on direct observation or experimentation. The second most used method is the Literature Review, which makes up 21% (11 articles), highlighting the significance of analyzing existing research. The Conceptual research method, comprises 12% (6 articles), suggesting that a smaller portion of the studies focused on theoretical frameworks or idea development. Lastly, the "Others" category, accounts for 6% (3 articles), indicating minimal reliance on alternative or mixed methodologies. The Figure provides a clear understanding of the predominant research approaches, emphasizing the dominance of empirical research in the study.

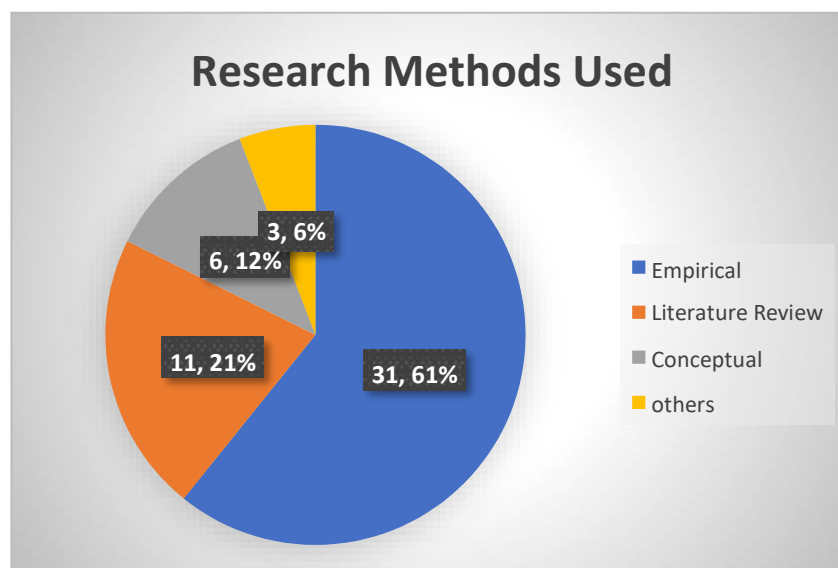


Figure 5. Methodologies of surveyed literature

6. Discussion

The findings of this study highlight the transformative role of digitalization in business sustainability, emphasizing its influence across economic, social, and environmental dimensions. The growth of digital transformation research in high-ranking journals, coupled with its increasing citations, reflects the academic and practical importance of this field. The data suggest that economic sustainability benefits significantly from digitalization, with cost reductions of 15-25%, revenue growth of 20-30%, and market expansion of 40% due to digital adoption strategies (Astuty et al., 2024). Additionally, digital adoption in micro and small businesses has improved financial resilience, allowing enterprises to remain competitive amid uncertain economic conditions. The rapid advancement of digital marketing strategies also enables firms to adopt a customer-centric approach, ensuring long-term sustainability.

7. . Conclusion

This research highlights the crucial role of digital transformation in driving business sustainability by enhancing economic efficiency, fostering social engagement, and promoting environmental accountability. The surge in high-impact publications and citations in recent years reflects the rising significance of this topic in both academic discussions and real-world business practices. Companies that actively embrace digital technologies tend to experience better financial outcomes, make a more meaningful social impact, and demonstrate stronger adherence to environmental regulations.

8. Theoretical and managerial implications

By integrating digital transformation within the larger context of business sustainability, this study advances the theoretical viewpoint on the subject. The Technology Acceptance Model (TAM) Theory and the Resource-Based View (RBV) are cited to show how digital adoption enables businesses to foster innovation, preserve a competitive edge, and guarantee long-term prosperity. The study emphasizes the need for an interdisciplinary approach that integrates knowledge from management, technology, and environmental sciences to evaluate how digitization promotes sustainable business practices. In terms of practical implications, the results highlight how crucial strategic investments in AI, cloud computing, and digital marketing are becoming for companies trying to improve sustainability. Businesses should make sure that their digital strategies prioritize cost-effectiveness, consumer involvement, and environmentally conscious operations to meet sustainability goals. To overcome any obstacles, managers must concentrate on infrastructure upgrades, personnel training,

and regulatory compliance while implementing digital solutions.

Additionally, governments and policymakers play a critical role in speeding up the use of digital technology, especially in developing economies and SMEs where incorporation is still slow. Businesses may adapt more successfully with the aid of funding programs, financial incentives, and regulatory support, guaranteeing that digital transformation not only increases profitability but also promotes long-term sustainability.

9. Limitations and future directions

This study is limited by dependence on secondary data, which might not represent current industry-specific difficulties, even though it offers insightful information. To confirm these results, longitudinal studies, primary data collecting, and experimental study methodologies should all be used in future investigations. Furthermore, this study mainly examines regional and global trends in digital transformation; yet, more investigation is required to examine industry-specific digital adoption tactics.

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