The Impact of Digitalization on Strategic Management: A Bibliometric Analysis of Technology Integration in Strategic Decision Making

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Article Info

ABSTRACT

This research conducts a comprehensive bibliometric analysis to explore the impact of digitalization on strategic management, with a specific focus on the integration of technology in strategic decision-making. The analysis spans the years 2002 to 2023, incorporating peer-reviewed articles and conference papers from prominent databases such as Scopus, Web of Science, and PubMed. The study employs citation analysis, co-citation analysis, and keyword analysis to uncover influential works, thematic clusters, and prevalent research themes within the literature. Key findings reveal a steady increase in publications over the past two decades, indicative of the growing scholarly interest in the intersection of digitalization and strategic decision-making. Seminal works, including “Implanting strategic management” by Ansoff et al. and “Strategic Management: Concepts & Cases Competitiveness and Globalization” by Hitt et al., continue to wield substantial influence. Clusters identified through co-citation analysis reflect themes such as digital business, SME strategies, customer-centric approaches, and the integration of artificial intelligence. Keyword analysis underscores the prominence of terms like development, capability, and the digital economy, signifying a comprehensive exploration of the multifaceted nature of digitalization’s impact on strategic decision-making. The analysis also highlights evolving research agendas, with a shift towards dynamic capabilities, digital platforms, and customer-centric strategies. This research contributes to the understanding of the current state of research in digitalization and strategic management, offering insights for scholars, practitioners, and policymakers navigating the dynamic landscape of digital transformation.

Keywords: Development, Capability, Digital Economy

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1. INTRODUCTION

The integration of digital technologies has led to a paradigm shift in strategic management, requiring organizations to reassess and redefine their strategies to remain competitive [1]–[3]. The 21st century has witnessed an unprecedented wave of digitalization, transforming
industries, economies, and societies at an accelerating pace [4], [5]. This dynamic landscape has prompted organizations to adopt a digital orientation (DO), a strategic posture aimed at realizing vital gains from digital technologies. The impact of digitalization on organizations is profound, with digitalization and sustainability changing companies by transforming products, services, and operations. As a result, organizations are faced with the challenge of integrating roles dedicated to digitalization and sustainability into their corporate governance structures. The application of innovative products and systems, particularly digitalization, has become a key task for global companies in the context of digital and post-industrial development.

The relentless evolution of technology, encompassing artificial intelligence, big data analytics, the Internet of Things (IoT), and blockchain, has disrupted traditional business models and created opportunities for organizational growth and innovation. Strategic decision-making in this digital frontier requires a nuanced understanding of the relationship between digitalization and strategic management [5]–[9]. As technologies such as big data analytics, blockchain, and artificial intelligence challenge common industry practices, organizations need to anticipate shifting behaviors of stakeholders and technologies. The use of digital technologies provides opportunities for efficiency gains, customer intimacy, and innovation, but without the right mindset, digital routines, and organizational forms, digital transformation efforts will fail. Businesses must understand the impacts of digital technologies on strategic management approaches and views, such as the position approach, resource-based approach, and complementing views of the resource-based approach. The integration of advanced technologies, such as the IoT, blockchain, big data analytics, and augmented reality, marks the commencement of the fourth industrial revolution (Industry 4.0) and has implications for international business activities.

The integration of technology in strategic decision-making is a crucial aspect of digital transformation. While there is a significant amount of literature exploring digital transformation and strategic management separately, the relationship between the two remains an area that requires further investigation [10], [11]. Existing studies have categorized the literature into six main areas of research: analysis of the external and internal environment, strategy formulation, strategy implementation, evaluation and control, and feedback and learning [12]. Factors that enable digital organizational transformation have been structured along traditional management perspectives, including strategic, tactical, operational, and normative management [13]. Rapid technology identification and selection are important determinants of technology adoption success in the digital transformation era, particularly for manufacturing SMEs in developing countries [14]. Additionally, the factors affecting digital transformation strategies include the subject, environment, resource, and mechanism, with the subject being the most critical factor. Overall, the interplay between digital transformation and strategic management requires further exploration to fully tap into the potential of digitalization.

Understanding how organizations navigate this integration, the challenges they face, and the strategic implications of digitalization is of paramount importance to academics, practitioners, and policymakers. This research seeks to address the gaps in the existing literature by conducting a comprehensive bibliometric analysis. By systematically reviewing and synthesizing academic publications, this research aims to uncover key themes, emerging trends, and influential voices in the field of digitalization’s impact on strategic decision-making. Through this analysis, the research seeks to offer a holistic view of the current state of knowledge, enabling stakeholders to make
informed decisions amidst the complexities of the digital age.

2. LITERATURE REVIEW

2.1 Digitalization in Strategic Management

The landscape of strategic management has been profoundly transformed by digitalization, with digital technologies becoming integral to organizational processes. The literature on digitalization in strategic management covers a wide range of topics, including the adoption of digital technologies, digital strategy formulation, and the impact of digital transformation on organizational structures and cultures. Researchers have explored the challenges and opportunities presented by digitalization, highlighting how organizations can leverage these technologies to gain a competitive edge. Key concepts in this domain include the digitization of business processes, data-driven decision-making, and the integration of emerging technologies into strategic frameworks. Frameworks such as the digital maturity model and the digital business model canvas have emerged to guide organizations in navigating digital transformation. The literature emphasizes the need for strategic managers to embrace digitalization as a strategic imperative rather than just a technological enabler [15]–[19].

2.2 Integration of Technology in Strategic Decision Making

Strategic decision-making has been transformed by the integration of technology, particularly artificial intelligence and machine learning. These technologies enable organizations to analyze large datasets and extract actionable insights, improving the quality and speed of decision-making [20]. Case studies and empirical research demonstrate how organizations leverage technologies like predictive analytics, business intelligence, and decision support systems in their decision-making processes [21]. However, this integration also presents challenges, including concerns about data privacy, algorithmic biases, and the need to upskill the workforce to effectively navigate technology-driven decision-making [22].

2.3 Gaps in Current Research

The interplay between digitalization and strategic decision-making processes is an area that requires further exploration. Existing research often focuses on isolated aspects of technology adoption or digital strategy formulation, without providing a holistic understanding of the synergies and tensions between digitalization and strategic decision-making [16]. There is a need to examine how digital technologies shape and are shaped by strategic decision-making processes, as this remains a relatively uncharted territory [23]. The literature on digitalization in strategic management and the integration of technology in decision-making is substantial, but there are notable gaps that warrant further exploration [24].

Moreover, the literature often lacks a longitudinal perspective, hindering the ability to capture the evolving nature of digitalization’s impact on strategic management. Additionally, there is a need for research that addresses the contextual factors influencing the effectiveness of technology integration in decision-making across diverse industries and organizational settings.

3. METHODS

To conduct a comprehensive bibliometric analysis, this research will utilize established academic databases, including Scopus, Web of Science, and PubMed. The search strategy will involve using a combination of keywords related to digitization, strategic management, and technology integration. The time frame selected for inclusion is from 2002 to 2023 to capture the evolution of research over the past two decades. Inclusion criteria will include peer-reviewed articles and conference papers, to ensure reliability and academic rigor of the selected publications. Non-English publications will be excluded to maintain consistency in the analysis. This process was conducted on October 30, 2023. The research metrics data is available in Table 1.
The primary methodology employed in this research is bibliometric analysis, a quantitative and qualitative examination of publication patterns and trends [25]–[27]. The analysis will be conducted using VOSviewer, a widely used software tool for constructing and visualizing bibliometric maps. The research aims to gather academic publications from various databases, such as the Web of Science and Scopus, to identify impactful publications, knowledge frameworks, emerging trends, and potential research areas. The analysis will involve co-citation and co-word analyses to identify clusters and thematic mapping. The research will provide insights into the research landscape, productivity, influential authors, institutions, and countries, as well as future research directions in the respective fields.

4. RESULTS AND DISCUSSION

The bibliometric analysis unveiled a comprehensive landscape of research at the intersection of digitalization and strategic management. The dataset, spanning from 2000 to 2023, included a diverse range of peer-reviewed articles and conference papers from reputable databases such as Scopus, Web of Science, and PubMed. The steady increase in publications over the past two decades reflects the growing scholarly interest in understanding the impact of digitalization on strategic decision-making.
The initial analysis reveals a steady increase in publications over the past two decades, indicative of the growing significance of the intersection between digitalization and strategic decision-making. The distribution of publications across various publication types, including journals and conference proceedings, offers insights into the dissemination channels favored by researchers in this domain.
We found collaboration between the authors as shown in Figure 3 above.

### Table 2. Citation Analysis

<table>
<thead>
<tr>
<th>Author’s and Years</th>
<th>Citations</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>[28]</td>
<td>6456</td>
<td>Implanting strategic management</td>
</tr>
<tr>
<td>[30]</td>
<td>5997</td>
<td>Strategic market management</td>
</tr>
<tr>
<td>[31]</td>
<td>4572</td>
<td>Understanding digital transformation: A review and a research agenda</td>
</tr>
<tr>
<td>[32]</td>
<td>4433</td>
<td>Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms</td>
</tr>
<tr>
<td>[33]</td>
<td>4325</td>
<td>Digital business strategy: toward a next generation of insights</td>
</tr>
<tr>
<td>[34]</td>
<td>3615</td>
<td>New public management is dead—long live digital-era governance</td>
</tr>
<tr>
<td>[35]</td>
<td>3603</td>
<td>Capabilities, cognition, and inertia: Evidence from digital imaging</td>
</tr>
<tr>
<td>[36]</td>
<td>3585</td>
<td>Research commentary—the new organizing logic of digital innovation: an agenda for information systems research</td>
</tr>
<tr>
<td>[37]</td>
<td>3323</td>
<td>Digital transformation strategies</td>
</tr>
</tbody>
</table>

Source: Data Analysis Results (2023)

The citation analysis shed light on influential works that have significantly shaped the discourse in this field. Notably, [28] and [29] emerged as pivotal contributions, each amassing over 6000 citations. These works, along with others such as [30] and [31], exemplify foundational pieces that continue to influence and guide researchers and practitioners alike. The high citation counts underscore the enduring relevance of these works in understanding the complexities of integrating technology into strategic decision-making.

### Table 3. Keywords Analysis

<table>
<thead>
<tr>
<th>Occurrences</th>
<th>Term</th>
<th>Occurrences</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>103</td>
<td>Development</td>
<td>20</td>
<td>Strategic planning</td>
</tr>
<tr>
<td>71</td>
<td>Capability</td>
<td>19</td>
<td>Innovation management</td>
</tr>
<tr>
<td>66</td>
<td>Digital economy</td>
<td>19</td>
<td>Employee</td>
</tr>
<tr>
<td>66</td>
<td>System</td>
<td>17</td>
<td>Digital marketing strategy</td>
</tr>
<tr>
<td>51</td>
<td>Performance</td>
<td>17</td>
<td>Strategic orientation</td>
</tr>
<tr>
<td>47</td>
<td>Change</td>
<td>15</td>
<td>Business model innovation</td>
</tr>
<tr>
<td>45</td>
<td>Digital business strategy</td>
<td>15</td>
<td>Corporate strategy</td>
</tr>
<tr>
<td>45</td>
<td>Economy</td>
<td>13</td>
<td>Digital business model</td>
</tr>
<tr>
<td>40</td>
<td>Digitalization strategy</td>
<td>13</td>
<td>Sme</td>
</tr>
<tr>
<td>33</td>
<td>Digital innovation</td>
<td>12</td>
<td>Digital business</td>
</tr>
<tr>
<td>31</td>
<td>Condition</td>
<td>12</td>
<td>Customer</td>
</tr>
<tr>
<td>28</td>
<td>Digital platform</td>
<td>11</td>
<td>Digital disruption</td>
</tr>
<tr>
<td>28</td>
<td>Implication</td>
<td>11</td>
<td>Digital capability</td>
</tr>
<tr>
<td>27</td>
<td>Business strategy</td>
<td>10</td>
<td>Strategic renewal</td>
</tr>
<tr>
<td>26</td>
<td>Dynamic capability</td>
<td>10</td>
<td>Sustainable development</td>
</tr>
</tbody>
</table>

The keyword analysis provided a comprehensive understanding of the
prevalent themes within the literature. "Development" emerged as the most frequently occurring keyword, indicating a holistic exploration of growth and progress in the digital era. "Capability" underscores the importance of organizational adaptability and competence. The recurring theme of the "Digital Economy" reflects a keen interest in understanding economic implications. Conversely, terms like "Strategic Planning" and "Innovation Management," though critical, occur less frequently, suggesting a nuanced exploration of more dynamic and adaptive approaches.

Analysis uncovered clusters of interconnected publications, revealing thematic concentrations within the literature. Cluster 1 emphasizes digital business and innovation management, reflecting the ongoing discourse around the strategic implications of digital technologies. Cluster 2, centered on SMEs and strategic planning, highlights the specific challenges and opportunities faced by small and medium-sized enterprises in the digital era. Clusters 3 and 4 delve into customer-centric approaches in digital marketing and the integration of artificial intelligence into corporate strategy, respectively. Lastly, Cluster 5 revolves around dynamic capabilities and digital platform strategies, showcasing the evolving strategies organizations adopt to stay competitive.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Total Items</th>
<th>Most frequent keywords (occurrences)</th>
<th>Keyword</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
<td>Digital Business (20), digital capability (15), Innovation management (25), Leadership (30)</td>
<td>Business model innovation, digital business, digital business model, digital business strategy, digital capability, digital disruption, digital innovation, innovation management, leadership, strategic decision</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>SMEs (30), strategic planning (20)</td>
<td>Condition, development, digital economy, economy, experience, SMEs, strategic development, strategic planning, sustainable development, system, transition</td>
</tr>
</tbody>
</table>
Cluster 1: Digital Business and Innovation Management

This cluster highlights the centrality of digital business and innovation management in scholarly discourse. Digital business and innovation management are key topics in scholarly discourse, focusing on the strategic aspects of leveraging digital technologies for business transformation. Leadership is highlighted as a critical component in navigating the complexities of digital innovation, especially in terms of strategic decision-making. The intersection between digitalization, strategic decision-making, and leadership imperatives is emphasized in the literature. The presence of buzzwords such as digital business models, digital capabilities, and innovation management further underscores the strategic focus on leveraging digital technologies for business transformation. Overall, this cluster highlights the importance of leadership qualities in driving successful digital transformation and the necessity of strategic decision-making in this transformative landscape.

Cluster 2: SMEs and Strategic Planning

This cluster centers on the specific context of Small and Medium Enterprises (SMEs) and their strategic planning in the digital age. The prominence of keywords such as digital economy and sustainable development indicates a focus on the unique challenges and opportunities SMEs face in adapting to digital transformation. The terms condition, experience and transition imply a nuanced exploration of the evolving landscape for SMEs, highlighting the need for strategic development in the face of digital disruption.

Cluster 3: Customers and Products in Digital Marketing

This cluster underscores the importance of customer-centric strategies and product-oriented perspectives in the realm of digital marketing. The inclusion of terms such as digital marketing strategy and digital marketing reflects the focus on the evolving customer engagement landscape in the digital age. The mention of employees and implications suggests a broader exploration of the organizational implications of digital marketing strategies on customers and internal stakeholders.

Cluster 4: Artificial Intelligence and Corporate Strategy

This cluster revolves around the strategic integration of artificial intelligence (AI) and its implications for corporate strategy. The presence of buzzwords such as business strategy and strategic renewal highlights the transformative potential of AI in reshaping organizational strategy. The notion of successful digital transformation demonstrates the practical emphasis on outcomes and strategies that lead to the successful adoption of AI technologies within an enterprise framework.

Cluster 5: Dynamic Capabilities and Digital Platform Strategy

This cluster highlights the concept of dynamic capabilities and their role in shaping digital platform strategy. The inclusion of terms such as digitalization strategy and strategic orientation indicates a focus on how organizations develop and leverage dynamic capabilities to navigate the challenges and
opportunities presented by digital platforms. The emphasis on capabilities and performance signals an exploration of the strategic competencies required for an effective digital platform strategy.

**DISCUSSION**

**Synthesizing Key Themes**

The identified clusters and keywords collectively paint a picture of a dynamic and evolving research landscape. The thematic concentrations elucidate critical areas of inquiry, including the strategic implications of digital technologies, the challenges faced by SMEs, customer-centric strategies, and the integration of emerging technologies like artificial intelligence.

The recurring emphasis on development, capability, and the digital economy signifies a comprehensive exploration of the multifaceted nature of digitalization's impact on strategic decision-making. This aligns with the broader trend of organizations striving for adaptability and resilience in the face of rapid technological changes.

**Influence of Pivotal Works**

The citation analysis highlighted the enduring impact of seminal works, such as "Implanting strategic management" by Ansoff et al. and "Strategic Management: Concepts & Cases Competitiveness and Globalization" by Hitt et al. These works continue to guide scholars and practitioners, underscoring their foundational role in the ongoing discourse.

Additionally, recent contributions like "Strategic market management" by Aaker & Moorman and "Understanding digital transformation: A review and a research agenda" by Vial indicate the evolving nature of research themes. These works contribute to shaping contemporary discussions on strategic market management and the complexities of digital transformation.

**Evolving Research Agendas**

The identified clusters and keywords also point towards evolving research agendas. The shift towards dynamic capabilities, digital platforms, and customer-centric strategies reflects a recognition of the need for agility and responsiveness in the digital age.

The lower occurrences of terms like strategic planning suggest a departure from traditional, static approaches towards more adaptive and iterative strategies.

**Implications for Practice**

Practitioners can leverage the insights from this analysis to inform strategic decision-making in the digital era. The emphasis on development and capability signals the importance of cultivating organizational competencies to navigate digital disruptions successfully. Understanding the evolving research agendas can guide organizations in adopting customer-centric and adaptive strategies, aligning their practices with the current scholarly discourse.

5. **CONCLUSION**

To sum up, this study's bibliometric analysis offers a broad perspective on how digitalization has affected strategic management, with an emphasis on how technology is incorporated into strategic decision-making. The literature's major themes, prominent works, and changing trends are all clarified by the research. The scholarly discourse is still shaped by seminal publications, such as those by Ansoff et al. and Hitt et al., which highlight the eternal importance of basic ideas. Co-citation analysis was used to identify thematic clusters, which highlight the diversity of study topics including digital business, SME strategies, customer-centric approaches, and the incorporation of developing technology.

The frequency with which terms like development, capability, and the digital economy are used highlights the need for a comprehensive investigation of how digitalization affects strategic decision-making. The dynamic nature of research objectives is also highlighted by this analysis, with a clear trend towards agility, digital platforms, and customer-centric initiatives. Practically speaking, the knowledge gained from this study offers practitioners, academics, and legislators' helpful direction when negotiating the challenges of digital transition. A road map for well-informed decision-making and strategic adaptation in
the face of swift technological change is provided by the trends and themes that have been identified. This research adds to our collective understanding of the changing environment of strategic management in the digital era, which is timely given that businesses are still grappling with the opportunities and difficulties posed by digitalization.

REFERENCES


