

Specific Elements of Digital Transformation to Increase Agility and Improve Performance in Modern Management

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Abstract. *We have structured this research around three representative pillars of the current environment: on the one hand, digital transformation, which by its very nature generates rapid changes and agility, which, if present in an organization, encourages digital transformation, and if it is absent, then as a result of digital transformation, digital transformation influences organizational agility (AlNuaimi et al., 2022). On the other hand, digital transformation leads to better innovative performance. Furthermore, performance is also viewed from another angle, namely one in which performance expectations act as a driver of digital transformation (Kő et al., 2022). Therefore, we observe how all three concepts are interdependent or how they influence one another. These three foundational dimensions, in our view, ought to be examined together through a bibliometric analysis so that we can gain deeper insight into the evolving interplay among digital transformation, agility, and performance in scholarly discourse. The objective of this study is to combine insights from the specialized literature with the results of a bibliometric analysis in order to identify and highlight the specific elements of digital transformation that facilitate increased agility and enhance performance in modern management.*

Keywords: digital transformation; agility; performance; modern management; bibliometric analysis.

Introduction

Despite the breadth of existing research on digital transformation, agility, and performance as distinct topics, our review of the specialized literature suggests a noticeable gap regarding their concurrent examination as an integrated whole. Most studies concentrate on individual relationships, such as the impact of digital transformation on performance or how agility mediates certain organizational processes without fully addressing how all three elements dynamically interact. In this sense, we propose that investigating these concepts together not only provides a more comprehensive perspective on the multifaceted drivers of modern organizational success, but also helps to clarify how they can collectively shape strategic decision-making, innovation, and competitive advantage. Through our bibliometric analysis, we aim to fill this gap

by illustrating the ways in which digital transformation, agility, and performance converge, intertwine, and mutually influence one another, thereby contributing to a deeper understanding of their combined effect on contemporary management practices.

In this paper, we address these three dimensions, which are closely interrelated, can influence one another, and may at times operate simultaneously or in tandem. We refer to the idea that these three dimensions: digital transformation, agility, and performance, are not only interrelated but may also exert mutual effects on each other. We conclude that the presence or development of one dimension can influence the trajectory or outcomes of the others, and vice versa. Also, they can sometimes function concurrently rather than sequentially, working together in a way that shapes an organization's strategic direction and adaptability.

The frequency with which these specified terms appear together in the academic literature can also be inferred from the manner in which these three dimensions, in turn, have given rise to new concepts such as "digital agility," "digital performance," and even "agility performance." This further suggests the importance of examining how these novel constructs operate in tandem to shape adaptive capabilities, strategic choices, and value creation, especially during periods of significant changes or disruptive events.

Building on the established view that agility, by facilitating a flexible and rapid response to change, acts as a catalyst for digital transformation and can thus be defined as a driver of digital transformation (Schlömer, 2022) we are now prompted to explore how digital transformation itself influences agility. In other words, we are asking whether there is reciprocal communication between these two concepts, such that the adoption and integration of digital technologies might also shape and reinforce an organization's capacity to remain agile. It is equally important to note that recent research has shown dynamic capabilities to be significant predictors of organizational agility (Zhang, 2023). There are also studies suggesting that digital transformation itself can enhance organizational agility (Xu et al., 2024), thereby reinforcing the notion of a two-way interplay between these concepts.

Literature review

Recent studies emphasize that by implementing strategic agility, organizations can achieve the performance outcomes they seek, positioning this approach as both a proactive facilitator and a catalyst for digital transformation (Rawashdeh et al., 2024). In parallel, multiple investigations suggest that digital leadership can also support strategic agility (Albannai et al., 2024). Another perspective emerging from the specialized literature posits that digitally enabled strategic agility arises from an organization's orientation toward digital transformation (Malik et al., 2025), thereby reinforcing the concept of bidirectional interaction between these elements. While we have introduced the notion of digital leadership, our intention here is not to delve deeper into it but rather to note it as another factor that may influence this domain.

Teng et al. (2022) examined the connection between digital transformation and performance within organizations, indicating a positive correlation between the two. Their findings also point to an association with concepts such as innovation performance, overall performance, and financial performance, suggesting that the impact of digital transformation resonates across multiple performance domains. This underscores the notion that digital initiatives can influence not only a firm's innovative capacity but also broader organizational effectiveness, reinforcing the significance of digital transformation as a key strategic driver in modern management. We can also broaden our understanding by considering the timeframe in which these effects unfold, as research suggests that the impact may manifest in both the short

and the long run (Kim, 2021). In this regard, sustainable growth variables, specific to various industry sectors, appear to influence the degree and pace at which small and medium enterprises adapt their business models during digital transformation so this view highlights that organizations may realize immediate operational benefits while simultaneously cultivating sustained strategic advantages.

We observe that the effects are not confined merely to the central categories typically emphasized in academic research, but also extend to sub-categories such as social performance. Notably, some investigations indicate that the influence of digital transformation on performance can be most pronounced during the first year immediately following its implementation (Wang et al., 2023).

Some researchers have proposed the concept of agility as a performance within digital, which offers a shift in how agility is conceptualized in the context of digital infrastructures (Allwein & Venters, 2017). This perspective not only underscores the fluid nature of agility as both a capability and an outcome, but also provides another clear example of how digital transformation, agility, and performance can be examined and rethought in a unified framework, thereby reinforcing the idea of their interdependence.

In other studies, the role of agility in a company's absorptive capacity for performance has been highlighted (Kale et al., 2019), illustrating once more the multifaceted influence of agility on organizational outcomes. This points to a broader pattern in the literature, where agility emerges as a pivotal factor not only in mediating the effects of digital transformation on performance but also in strengthening the firm's ability to assimilate and capitalize.

Methodology

A bibliometric analysis was carried out to investigate the connections among the three areas of interest: digital transformation, agility, and performance in the context of modern management. We utilized VOSviewer (version 1.6.20) to conduct our data analysis, as it offers comprehensive functionalities for constructing and visualizing bibliometric networks. We chose the type of analysis based on co-occurrence, and the unit of analysis was all keywords.

The database was constructed using articles indexed in Web of Science SSCI and SCI-Expanded. We chose only published scientific articles, from 2020–2024. We selected this period to be as relevant as possible in relation to digital transformation. We also filtered for English-language articles and documents that explicitly included our core conceptual triad were retained for further bibliometric analysis.

As an exclusion criterion, we specified the topic field in the Web of Science advanced search, focusing on the three target constructs. To avoid unrelated industries, we also applied filters based on the Web of Science categories, ensuring that only articles aligned with our areas of interest would be included in the dataset.

Source: VOSviewer.

We also observe that the terms agility and performance are centrally positioned, in close proximity to the main term digital transformation. In addition, the density of the connections must be noted, as it suggests that the network formed around these three concepts is mature and exhibits a significant degree of integration with the related themes analyzed. As a result of the analysis, five clusters were generated, comprising a total of 77 terms.

Cluster	Conceptual Core	Thematic Focus
Cluster 1	Management	Organizational capabilities, supply chain, contextual adaptation
Cluster 2	Agility	Strategic responsiveness, innovation, business alignment
Cluster 3	Digital Transformation	Digital strategy, firm performance, IT capabilities
Cluster 4	Performance	Innovation performance, mediating role, evaluation metrics
Cluster 5	Transformation	Big data, technology, knowledge transfer, impact

The terms identified are relevant to the research and to the selected themes, which confirms the proper correlation between the chosen topics and the underlying conceptual structure.

Other recent bibliometric studies have also confirmed the relevance of examining the relationship between digital transformation and the other two key constructs addressed in this paper. For example, performance has been identified as directly linked to digital transformation in the synthetic review conducted by Chen and Shen (2024), while the connection between digital transformation and agility is emphasized in the bibliometric analysis of Savkovic et al. (2022).

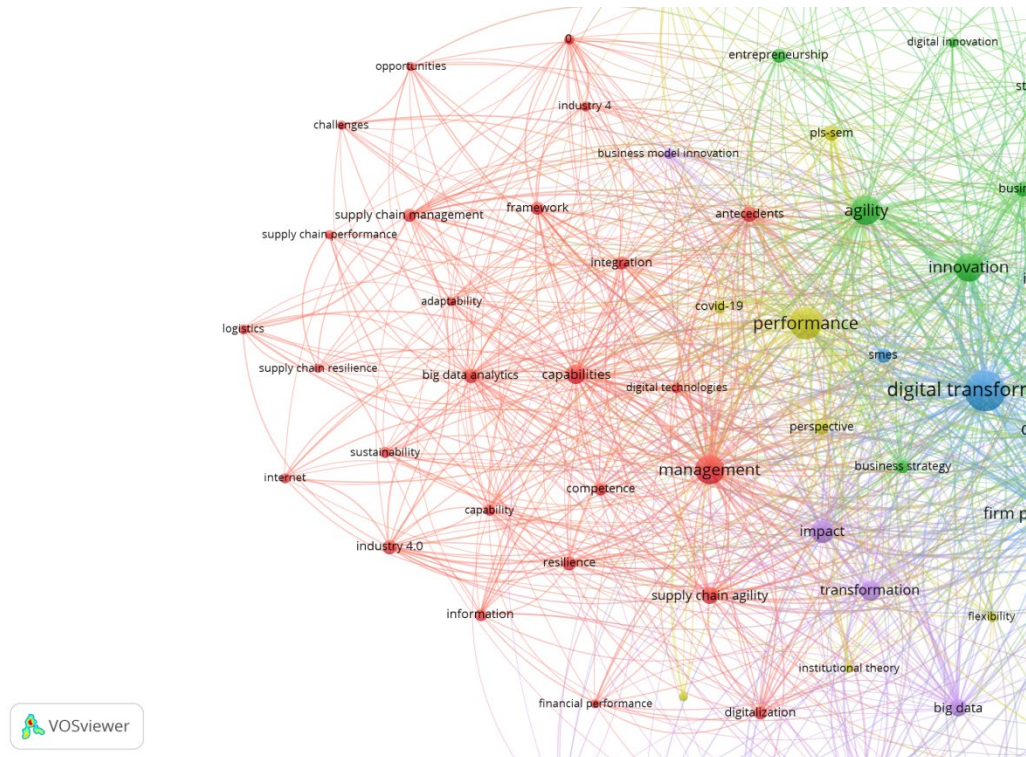


Fig. 2 Cluster 1

Source: VOSviewer.

The first cluster places the term management at its core, which may suggest a clear orientation toward the managerial dimension of digital transformation. Other central terms such as capabilities, adaptability, and resilience indicate the disruptive impact that digital transformation has on managerial practices and may point to a specific focus on how organizations approach change management.

Among the sub-themes identified, we observe the presence of supply chain, supply chain performance, and supply chain agility. Other recent bibliometric studies focusing on two of the concepts analyzed in this research support the idea that most of the literature on digital transformation in the supply chain has concentrated primarily on the advantages of its application (Oh et. al., 2023) which is particularly relevant as it begins to reflect the influence of the other two key concepts analyzed agility and performance. It is also significant that this cluster emphasizes the efficiency and responsiveness of supply chains, especially in digitally driven environments. At the same time, we notice that other sub-themes focus more on cognitive and behavioral aspects, including competence, capability, adaptability, and integration, suggesting that the literature also pays attention to the development of soft skills and organizational learning capacities in the face of digital change.

Source: VOSviewer.

It is interesting to note the presence of the term *fsqca* within this cluster, which suggests that this dimension is frequently analyzed empirically through configurational and structural models, further confirming the methodological rigor of the literature in this area of interest. We also observe terms such as *business*, *entrepreneurship*, *strategy*, and *product*, which indicate a strong focus on how agility contributes to strategic decision-making, business model adaptation, and product-level innovation in digitally transforming environments.

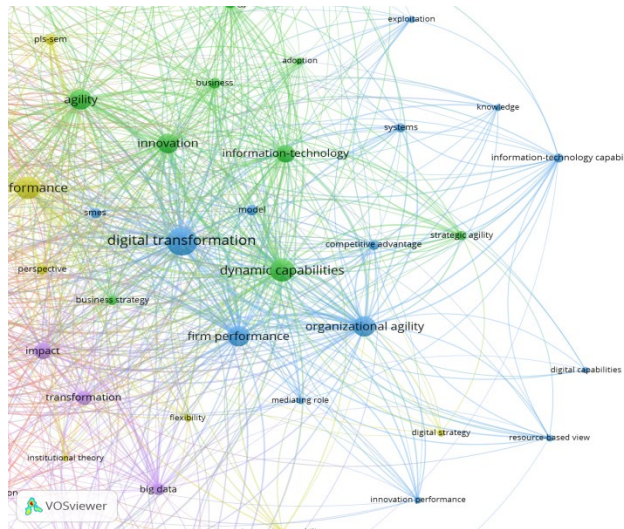


Fig. 4 Cluster 3

Source: VOSviewer.

Cluster 3 is centered on the term digital transformation, which stands out as the most prominent term in the entire analyzed set. As expected, it also holds the highest number of connections with the other clusters, reinforcing its role as the central integrative concept across the thematic network.

The most relevant concepts in relation to the core are firm performance and organizational agility, which is particularly significant as it confirms the appropriateness of the chosen focus and highlights a strong interdependence. Other emerging themes such as mediating role, innovation performance, digital capabilities, system, and competitive advantage further demonstrate that performance is understood both as a direct outcome and as an intermediate dimension between capabilities and strategy.

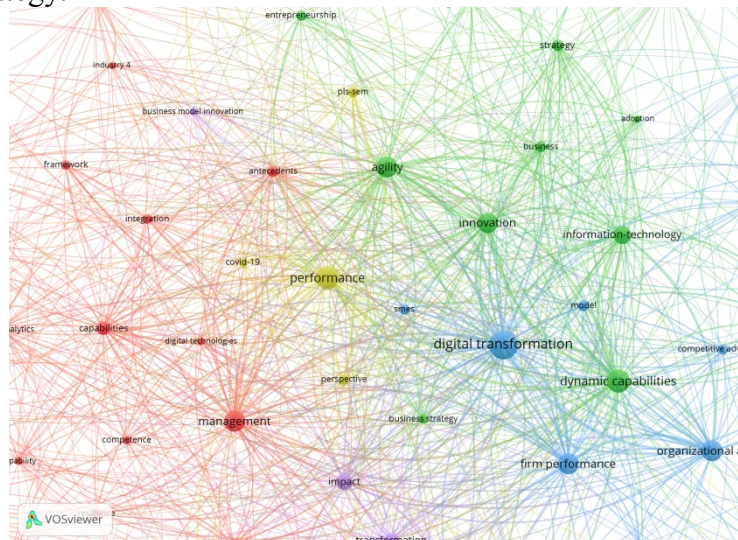


Fig. 5 Cluster 4

Source: VOSviewer.

The central node of Cluster 4 is performance. The presence of the term PLS-SEM suggests a tendency toward the use of structural equation modeling methods in analyzing this

theme. Additionally, we observe sub-themes such as design, flexibility, innovation capability, and institutional theory, which provide contextual depth related to competencies, strategic perspective, and organizational impact. These elements indicate that performance is not treated solely as an outcome, but rather as a multifaceted construct shaped by design choices, adaptability, innovation potential, and broader institutional influences.

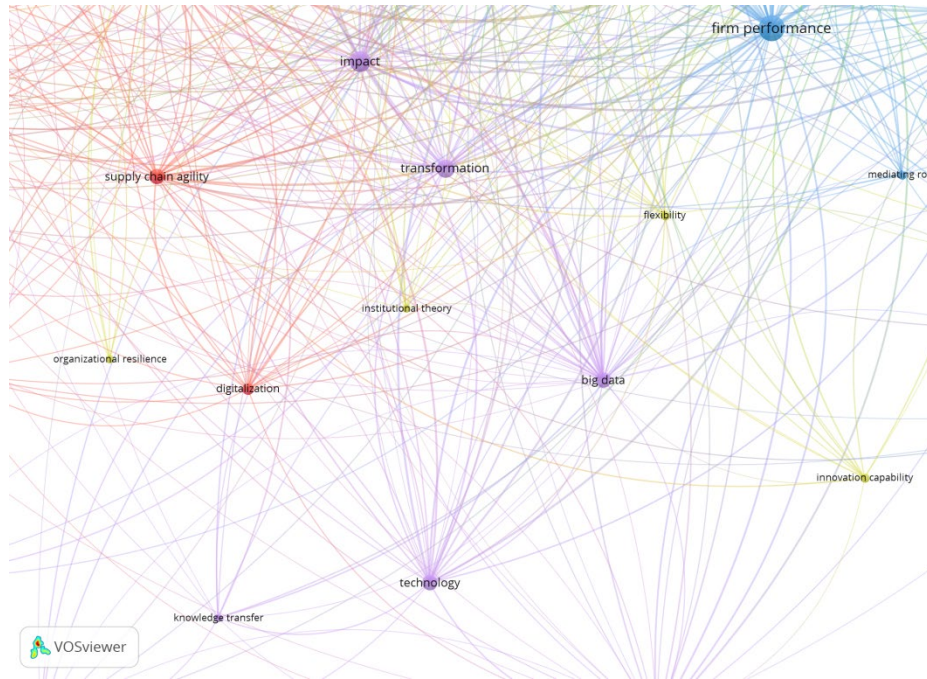


Fig. 6 Cluster 5

Source: VOSviewer.

Cluster 5 is represented by the central term transformation, which suggests an approach focused on deep organizational change processes. This is supported by closely related terms such as big data, technology, and knowledge transfer, highlighting a clear concern with the technological foundations of digital transformation. The presence of these concepts reflects an emphasis on the infrastructural and informational elements that enable and sustain long-term transformation within organizations.

Results and discussions

By linking and analyzing from two perspectives firstly, the theoretical insights derived from the specialized literature, and secondly, the bibliometric analysis, we sought to identify the specific elements of digital transformation that stimulate agility and enhance performance in organizations.

We started from the premise, demonstrated through our analysis that beyond the causal relationships among the three dimensions: digital transformation, agility, and performance, there exists a broader ecosystem of factors that mutually influence each other and can generate emergent effects.

We observed that in this ecosystem, there are a series of factors, often found alongside the studied terms that can be technological, cultural, or strategic in nature. Nonetheless, we recognize that digital transformation serves as a central element, and the specific factors that create an agile

and high-performing environment may include emerging technologies, digital competencies, as well as a mindset geared especially toward innovation. Furthermore, we noted the dual role of agility within digital transformation: rather than viewing agility as a mere consequence of digitization, our analysis reveals a cyclic dynamic where digital technologies can enhance agility, yet agility in turn accelerates digital adoption.

In our study, performance emerges as a broad concept that includes innovation, resilience, and stakeholder satisfaction, underscoring that it is often demonstrated in conjunction with digital infrastructure, people's capabilities, digital leadership, and strategic vision. Accordingly, each of the five clusters can be viewed as an ecosystem that brings together various factors, offering anchor points from which we can extract the concrete elements for designing transformation initiatives.

Conclusion

Our analysis provides an integrative understanding of how these three core concepts: digital transformation, agility, and performance, mutually support and amplify each other. At the same time, we identified co-occurrence relationships based on keywords, suggesting a simultaneous rather than a sequential approach.

Thus, aligning technology with cultural and strategic aspects allows for the achievement of genuine agility and performance though not without considering investments in human resources for updating digital competencies. Moreover, robust digital leadership and strategic oversight that foster innovation can accelerate the transition and maximize returns.

In conclusion, we acknowledge the presence of certain limitations, given that this study is part of a broader research program. As it represents only one segment of a more comprehensive investigation, specific aspects such as deeper causal modeling will be explored in subsequent phases of the study. Furthermore, our exclusive focus on the Web of Science databases meant that other relevant studies indexed in different academic databases were not included. We consider these limitations as directions for future work, aiming to approach the three studied dimensions in a more extensive manner.

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