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The Nexus of Digitalization and Innovation in Business Processes: A Bibliometric Analysis and Identification of Research Gaps

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Abstract. *The rapid development of digitalization and innovation has become a key driver in improving business processes and the competitiveness of organizations worldwide. This study is the first comprehensive bibliometric analysis examining the relationship between digitalization and innovation in business processes, to map the intellectual structure of this field, track the development of its themes, and identify remaining research gaps. This analysis, which utilizes data from Scopus processed using VOSviewer and Biblioshiny software, covers publications from 2010 to 2024 and employs co-occurrence, co-authorship, and thematic evolution techniques. The results show a rapid growth in publications since 2016, peaking at over 110 publications in 2024. Eight key thematic clusters stand out: Industry 4.0, artificial intelligence, robotic process automation, blockchain, drivers, and agile business process management. Despite the field's maturity, it still suffers from high fragmentation, strong geographic concentration, and a reliance on cross-sectoral research designs. As a result, longitudinal insights remain limited, and digital transformation failure rates remain high, reaching up to 70%. This research presents the first quantitative and visual roadmap of global knowledge flows in this domain and underscores the need for longitudinal, geographically inclusive, and people-centric research to move beyond single-point understandings to a sustainable, context-sensitive framework that enhances both the theoretical depth and practical success of digital-based business process innovation.*

Keywords: *Bibliometric Analysis; Business Processes; Digitalization; Innovation; Research Gaps.*

1. INTRODUCTION

Digitalization, the application of information technology to optimize operations, has fundamentally transformed organizational workflows, resource management, and customer interactions. Meanwhile, innovation, which creates new value through disruptive ideas, plays a crucial role in adapting amidst post-pandemic economic uncertainty. The World Economic Forum's 2023 report states that more than 70% of global companies have adopted digital strategies to improve process efficiency, with innovation contributing up to 15% annual growth. This trend is particularly pronounced in developing countries like Indonesia, where the manufacturing and service sectors are under pressure to shift to data-driven models that can increase process innovation by up to 25%, despite remaining hampered by infrastructure and regulatory constraints.

As these dynamics evolve into 2025, recent assessments from the World Economic Forum further illuminate the accelerating trajectory of digital integration. The Future of Jobs Report 2025, for instance, projects that technological convergence, encompassing artificial intelligence, blockchain, and sustainable tech will reshape 85 million jobs globally by 2027,

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while creating 97 million new opportunities, predominantly in data-driven process roles. This convergence underscores a pivotal shift toward hybrid human-digital workflows (Kesuma et al., 2025), where innovation not only mitigates economic volatilities but also embeds resilience against emerging risks like cyber vulnerabilities and supply chain disruptions. In Indonesia, this manifests through national initiatives such as the Digital Economy Roadmap 2025, which aims to elevate digital adoption in manufacturing by integrating IoT-enabled predictive maintenance, potentially boosting sectoral GDP contributions by 10-15 percent. However, these ambitions are contingent on addressing entrenched barriers, including rural-urban digital divides and the need for harmonized policies that incentivize cross-sectoral collaborations. Such contextual nuances highlight the imperative for adaptive frameworks that balance technological imperatives with socioeconomic inclusivity, ensuring that digitalization serves as a equitable catalyst rather than an exacerbating divide.

Existing literature emphasizes the complementary roles of digital transformation (DT) and business process management (BPM). (Kirchmer, 2016) developed the "BPM Discipline" framework, which emphasizes agility and value-driven execution in a digital environment. Recent research, such as (Ammirato et al., 2024) demonstrates how BPM supports DT in the public sector through process redesign, while (Moreira & Pádua, 2024) highlight the trend of IoT integration for operational efficiency. (Ou et al., 2024) use grounded theory to uncover the stages of DT in the Chinese offshore wind industry, while Tiwari (2024) examines business model innovation through digitalization. Overall, these studies demonstrate that DT can create adaptive systems, but its success is highly dependent on user-centered design and technology alignment (Rafasya et al., 2025).

Advancing this discourse, 2025 scholarship continues to refine the interplay between DT and BPM, emphasizing human-centric and sustainable dimensions (Irianto et al., 2025). For example, a study by Prosci on digital transformation trends forecasts that by 2026, over 80 percent of BPM implementations will incorporate low-code/no-code platforms to accelerate process automation, thereby reducing deployment timelines by up to 50 percent and enhancing employee autonomy in workflow customization. Complementing this, empirical research published in the Business Process Management Journal explores how digital innovation bolsters BPM to foster sustainable investments in European Union firms, revealing that IT-driven process optimizations correlate with a 20-30 percent uplift in environmental performance metrics. These insights extend to employee engagement dynamics, where a 2025 analysis posits that proactive involvement in BPM redesigns during DT phases can mitigate resistance, elevating adoption rates by 25 percent through targeted training and feedback loops.

Collectively, such contributions affirm BPM's evolution from a mere operational tool to a strategic orchestrator, yet they also reveal persistent tensions in aligning technological scalability with organizational cultures, particularly in volatile sectors like renewable energy and logistics.

The conceptual foundations of this synergy trace back to foundational theories in organizational change, where DT is framed as a multifaceted ecosystem rather than isolated technological upgrades. Drawing from resource-based view perspectives, BPM emerges as a critical capability that leverages digital assets to sustain competitive moats, enabling firms to reconfigure processes dynamically in response to market signals. This theoretical underpinning is empirically validated in sector-specific applications, such as the offshore wind case, which illustrates phased maturation from exploratory tech adoption to ecosystemic value co-creation, mirroring broader patterns in high-capital industries. In entrepreneurial contexts, digitalization facilitates modular business models that permit rapid iteration, allowing nascent ventures to scale innovations without prohibitive upfront costs. However, the efficacy of these models invariably rests on participatory design principles, which ensure that end-users co-shape interfaces and protocols, thereby fostering ownership and minimizing implementation frictions. This inductive progression from theoretical constructs to practical exemplars underscores a maturing field, yet one that demands vigilant attention to alignment mechanisms to avert the pitfalls of miscalibrated deployments.

Despite significant progress, significant research gaps remain, including fragmented knowledge in information technology (Henrika et al., 2025) and strategic management, and a tendency for studies to focus solely on specific sectors, such as supply chains, without providing a comprehensive global picture. This fragmentation leads to research duplication, makes it difficult for practitioners to design integrated strategies, and contributes to the high failure rate of digital transformation (up to 70%). Therefore, a comprehensive literature synthesis is needed to support policymaking and practices aligned with Sustainable Development Goal (SDG) 9 on innovation and infrastructure. The novelty of this research lies in the use of a systematic bibliometric approach, which provides a quantitative mapping that was previously unavailable.

This research addresses this gap through a systematic bibliometric analysis that maps the development of publications on the integration of digitalization and innovation in business processes, identifies key thematic clusters, and patterns of intellectual collaboration, and uncovers crucial research gaps to guide future research and practical implementation.

2. LITERATURE REVIEW

Numerous studies have explored how digital transformation is reshaping business process management (BPM), enabling organizations to optimize operations, drive innovation, and maintain competitive advantage. (Kirchmer, 2016, 2024) developed the "BPM-Discipline" framework, which transforms strategy into agile, compliant, and value-driven processes in a constantly changing digital environment, leveraging tools such as ARIS. This approach addresses the challenges of the "new normal" resulting from rapid technological change while ensuring sustainable performance.

Recent research demonstrates the increasingly important role of BPM in various fields. (Ammirato et al., 2024) present a case study of an Italian public university, where process redesign using BPMN 2.0 successfully accelerated digital transformation and improved quality and efficiency. (Moreira & Pádua, 2024) through a bibliometric analysis of the period 1960–2023, identified four key trends: strategic alignment, IoT integration, sustainability, and workforce reskilling; this confirms that BPM has become a strategic driver. (Ou et al., 2024) used grounded theory in the Chinese offshore wind industry and identified three stages of digital transformation: technology leapfrogging, platform building, and value creation supported by policies that can reduce high costs and environmental risks.

Innovation is a central theme, with digital transformation driving the emergence of new business models and value chains. (Tiwari, 2024) developed a framework linking digitalization to business model innovation, while (Shaikh, 2024) demonstrated the role of artificial intelligence (AI) in helping SMEs innovate more efficiently and thus catch up with large corporations. (Taherdoost et al., 2024) examined how SMEs are addressing digital disruption through agile strategies and technologies such as AI and VR, ultimately enhancing their global competitiveness.

Key challenges that often arise are resistance to change, skills gaps, cybersecurity, and inert organizational cultures (Taherdoost et al., 2024; Wokurka et al., 2016). Solutions offered include secure "Decisions as a Service" architectures (Hof et al., 2016), highly integrated digital supply chains leveraging supercomputers (Farahani et al., 2016), cloud-based and AI-based opportunities (Kowalkiewicz et al., 2016), and human-centered co-innovation approaches (Vom Brocke, Fay, Böhm, et al., 2016). Overall, this literature confirms that the successful integration of digitalization and innovation into business processes requires the adoption of appropriate technologies, strategic alignment, ecosystem collaboration, user-centric design, and proactive management of social, environmental, and geopolitical risks (Kesuma et al., 2025).

3. RESEARCH METHODOLOGY

This study applies a comprehensive qualitative-descriptive bibliometric approach, focusing primarily on articles published in Scopus-indexed journals, covering the period from 2010 to 2024 (Saputra et al., 2025). Scopus was chosen as the primary database because it is one of the most widely recognized international academic databases, offering extensive coverage of scientific literature from various disciplines, including business process management and digital transformation. Selecting Scopus not only ensures a global representation of relevant literature, but also supports more reliable and easily interpretable analyses, ultimately contributing to a deeper understanding of research dynamics in this field (Berniak-Woźny & Szelągowski, 2024; Currie et al., 2024; Kirchmer, 2016; Lim et al., 2022).

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This study used two specialized software tools for bibliometric analysis: VOSviewer with the Biblioshiny app from the bibliometrix package. Both tools were chosen for their ability to visualize and map scientific networks and trends over time. VOSviewer was used to create co-authorship and co-occurrence networks, mapping the intellectual structure and development of the digital transformation in business processes research field (Gobniece & Titko, 2024; Khanmirzaee et al., 2025; Marino-Romero et al., 2024; Moreira & Pádua, 2024). Biblioshiny, on the other hand, was used to track the evolution of thematic networks, dividing the research timeline into distinct phases This dual approach provided a dynamic and thorough analysis of the field's growth and emerging trends (Ammirato et al., 2024; Aria & Cuccurullo, 2017; Lee et al., 2024)

VOSviewer was used to generate bibliometric maps based on network data and visualizations (Donthu et al., 2021). It was selected for its effectiveness in handling large datasets and its ability to visualize complex networks, helping to define scientific domains and track the evolution of research over time (Aria & Cuccurullo, 2017; Donthu et al., 2021; Khanmirzaee et al., 2025). The software facilitated the construction of bibliometric maps by

collecting data, selecting units of analysis, calculating co-authorship and co-occurrence frequencies, and visualizing these relationships on two-dimensional maps. The final result is a clear and intuitive visual representation of the field's structure and evolution. Data from Scopus was processed and exported to VOSviewer using CSV format.

The study categorized the database into distinct clusters based on co-occurrence, a widely used method in bibliometrics to identify patterns of association between frequently co-occurring terms (Donthu et al., 2021; Yang et al., 2022). The co-occurrence analysis method was applied, with a minimum keyword occurrence set to four. This resulted in 186 references being included in the final analysis. This method was employed to identify significant relationships between terms and provides insights into the structure and evolution of the research field throughout 2010-2024 (Donthu et al., 2021; Khanmirzaee et al., 2025).

Metadata downloaded from the Scopus database was analyzed for collaboration to create a bibliographic network showing collaboration between authors, affiliations, and countries. The co-authorship analysis method was applied, with a minimum number of documents set to two. This resulted in 82 references being included in the final analysis, with the largest set of connected items being 6 nodes.

The study employed a software tool that generates traditional science mapping techniques to produce thematic networks, represented as circular clusters whose sizes correspond to the number of associated documents. Connections between clusters indicate the degree of overlap, as defined by links, with the thickness of these lines reflecting the strength of topic connections. The annual scientific production diagram was required in order to analyze the evolution of publications in the digital transformation in business processes research field from 2010-2024.

In generating the thematic evolution map, Biblioshiny was configured with specific parameter settings to optimize results. The number of words is set to 250, minimum cluster frequency (per thousand docs) is set to 5, minimum weight index is set to 0,2, label size is set to 0,3, number or labels (for each cluster), and Walktrap was chosen as the clustering algorithm. In the thematic map analysis, density indicates the prevalence of a theme in each research field, where centrality reflects the significance of the theme. This metric categorizes themes into four different quadrants. To enhance the analysis and facilitate comparisons across periods, the study period was divided into three distinct temporal divisions: 2010–2015, 2016–2020, and 2021–2024. Biblioshiny developed strategic diagrams for each of these periods (Aria & Cuccurullo, 2017; Marino-Romero et al., 2024)

4. RESEARCH RESULTS AND DISCUSSION

Research Results

Publication Evolution

Between 2010 and 2015, document production on the intersection of business process management (BPM) and digital transformation was relatively low and fluctuated, remaining below five publications per year in major indexed databases. A more pronounced and sustained growth in scholarly output became evident from 2016 onward, reflecting the rapid acceleration of digitalisation across industries. The period 2016–2020 marked a clear boom, with the annual number of publications rising sharply. For instance, the years 2016–2017 already saw the emergence of foundational works on BPM as an enabler of digital innovation and transformation (Kirchmer, 2016; Van Looy, 2017; Vom Brocke, Fay, Böhm, et al., 2016; Vom Brocke, Fay, Schmiedel, et al., 2016). By 2020 the volume had grown significantly, driven by increasing interest in Industry 4.0 integration, digital ecosystems, and process-oriented digital strategies (Lee et al., 2024; Levina et al., 2024; Pesce et al., 2024).

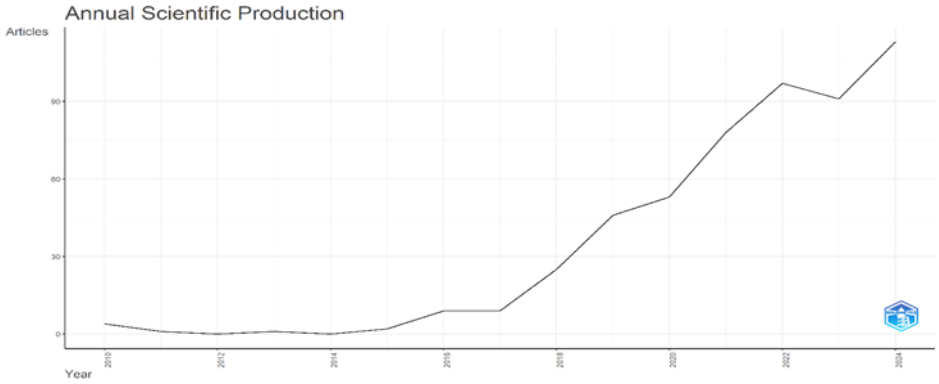

Figure 1. Annual Scientific Production

The period 2021–2024 shows consolidation and maturation at high production levels, with a peak of over 110 documents in 2024 alone in Scopus-indexed sources. This phase is characterised by a strong focus on advanced and sector-specific applications, such as digital intelligence in offshore wind power (Ou et al., 2024) and digital collaborative factories (Lee et al., 2024). The temporal division into these three stages therefore accurately captures the evolution from an emerging, low-volume discourse (pre-2016), through a rapid growth phase (2016–2020), to a mature and highly productive research domain (2021–2024) that increasingly emphasises practical implementation, emerging technologies, and sectoral adaptation (Currie et al., 2024; Kim & Park, 2024; Ustymenko, 2024; Xuan et al., 2024).

Thematic Evolution

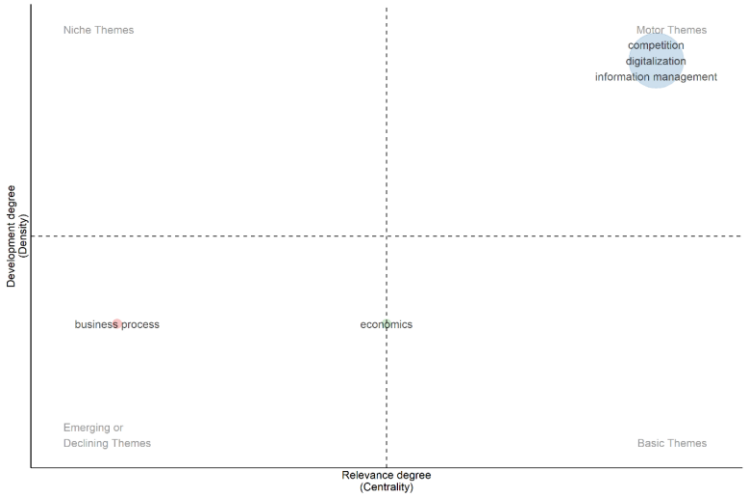

Figure 1. Biblioshiny: Period 2010-2015

For a more accurate analysis, the database was divided into three periods 2010-2015, 2016-2020, and 2021-2024. The 2010–2015 period can be regarded as a foundational stage during which the groundwork was laid for later explosive growth in research on digital transformation of business processes. Although publication volume was still modest in that early phase, subsequent scholarship from 2016 onward clearly shows that digital transformation of business processes quickly emerged as the dominant and most powerful motor theme in the field (Currie et al., 2024; Moreira & Pádua, 2024). The consolidation of digital transformation as the central motor theme during this period reflects the field's recognition that digital tools and process-oriented approaches are indispensable for navigating increasingly dynamic, uncertain, and geopolitically complex markets (Currie et al., 2024; Shaikh, 2024; Tiwari, 2024).

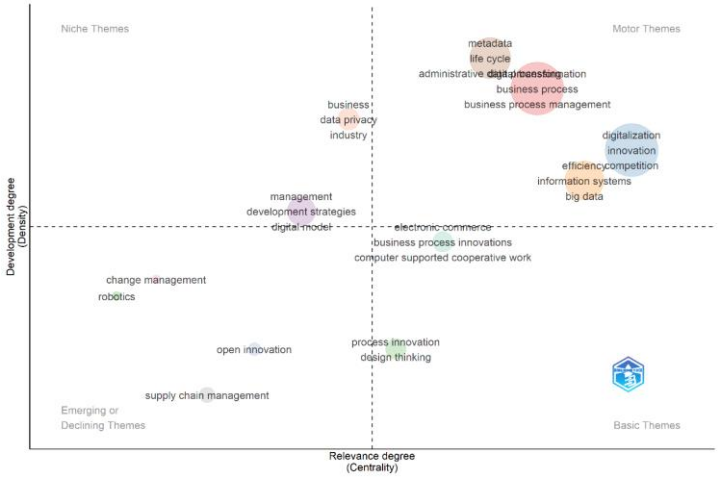

Figure 2. Biblioshiny: Period 2016-2020

In the 2016–2020 period, digital transformation of business and administrative processes was supported by strict metadata and life-cycle governance has emerged as the central motor theme of the field (Farahani et al., 2016; Hof et al., 2016; Kowalkiewicz et al., 2016; Vom Brocke, Fay, Schmiedel, et al., 2016). Far from remaining a peripheral concern, the systematic management of data throughout its entire life cycle, coupled with the digital redesign of both operational and administrative processes, now stands alongside big data analytics and innovation-driven efficiency as one of the three pillars driving scholarly and practical advancement (Ammirato et al., 2024; Kirchmer, 2016; Lee et al., 2024; Wokurka et al., 2016). Meanwhile, human-centered approaches such as process innovation and design thinking have transitioned from novel methodologies to basic themes, reflecting their complete assimilation into the standard toolkit of digital initiatives (Levina et al., 2024; Moreira & Pádua, 2024; Vom Brocke, Fay, Schmiedel, et al., 2016). This structural evolution clearly shows that sustainable competitive advantage is no longer acquired solely from adopting digital tools, but from orchestrating coherent, governable, and reusable digital ecosystems across the full spectrum of organizational and administrative activities (Böhmecke-Schwafert, 2024; Currie et al., 2024; Kirchmer, 2016; Ou et al., 2024).

From 2021 to 2024, research on digital transformation reached a clear turning point. Themes such as robotic process automation, Industry 4.0 technologies, artificial intelligence, blockchain applications, and the strategic handling of information, risk, and organizational change have become the main driving forces of the field (Ammirato et al., 2024; Moreira & Pádua, 2024; Shaikh, 2024; Tiwari, 2024). Digital transformation of business processes is no longer seen as an emerging topic it has moved into the category of well-established, fundamental knowledge that becomes basic themes within the research field (Currie et al., 2024; Moreira & Pádua, 2024).

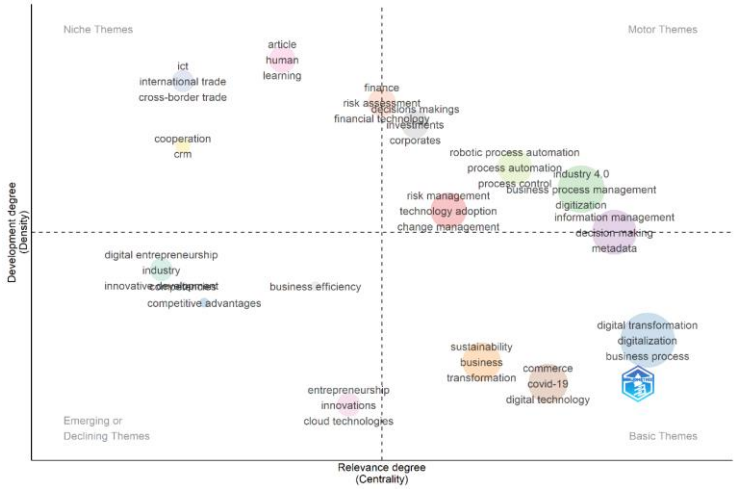

Figure 3. Biblioshiny: Period 2021-2024

At the same time, the effects of the post-COVID-19 acceleration and the strong push for sustainability have become central ideas that appear in nearly every sector (Ou et al., 2024; Ustymenko, 2024; Xuan et al., 2024). New and rapidly growing topics include business efficiency, competitive advantage, cloud technologies, entrepreneurship, innovation clusters, blockchain in global supply chains, and the environmental impact of digitalization. This shows that researchers are now focusing on how companies can use cloud systems, entrepreneurial networks, innovation-friendly policies, and sustainable digital infrastructure to turn operational improvements into lasting efficiency, stronger market position, and greater long-term resilience (Böhmecke-Schwafert, 2024; Gebesmair & Nölleke-Przybylski, 2024; Kesuma et al., 2025; Shaikh, 2024; Ustymenko, 2024; Xuan et al., 2024).

Co-authorship Analysis

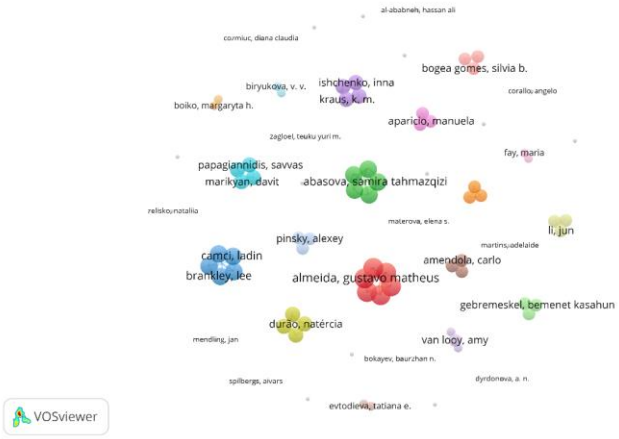

Figure 4. VosViewer: co-authorship analysis map

The network shows 82 authors forming 18 separate clusters. Collaboration exists, but it is still mostly limited to regional or institutional groups (Farahani et al., 2016; Kowalkiewicz et al., 2016; Moreira & Pádua, 2024). Many clusters are small and not connected to others, which means most joint work happens within local teams rather than across the global research community (Currie et al., 2024; Hof et al., 2016; Kirchmer, 2016). No single author stands out as a central connector; the most active researchers mainly influence their own cluster (Ou et al., 2024; Tiwari, 2024; Xuan et al., 2024).

Co-occurrence Analysis

Cluster 1 (Red) focuses on Industry 4.0 and modern manufacturing. Key themes are the Internet of Things (IoT), smart factories, process innovation, and process mining especially for helping small and medium enterprises become more competitive and innovative (Ou et al., 2024; Tiwari, 2024).

Cluster 2 (Green) explores entrepreneurship and strategy in digital ecosystems. Key themes include digital platforms, digital startups, digital twins, innovation processes, and strategic management (Currie et al., 2024; Ustymenko, 2024).

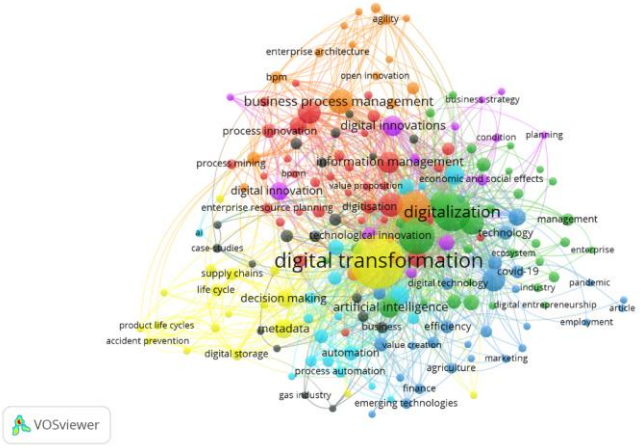

Figure 5. VosViewer: co-occurrence analysis map

Cluster 3 (Blue) looks at the broader economic and sectoral effects of digitalization, with special attention to how COVID-19 sped up adoption in employment, agriculture, trade, and commerce (Currie et al., 2024; Ou et al., 2024). Key themes include big data, blockchain, and digital economy (Moreira & Pádua, 2024; Tiwari, 2024)**.**

Cluster 4 (Yellow) concentrates on data-driven strategies throughout the entire product and supply-chain lifecycle. Key themes include product lifecycle management, supply chain integration, better decision-making, and data governance (Ou et al., 2024; Tiwari, 2024).

Cluster 5 (Black) deals with risk and sustainability in digital operations. Key themes include cybersecurity, supply-chain risks, environmental sustainability, and crisis management, particularly in sensitive industries such as oil & gas and manufacturing (Currie et al., 2024; Ou et al., 2024).

Cluster 6 (Cyan) examines intelligent automation, led by robotic process automation (RPA), artificial intelligence, data mining, and business process automation (Ou et al., 2024; Tiwari, 2024). Key themes include digitization, business processes, and human resource management (Currie et al., 2024; Ustymenko, 2024; Xuan et al., 2024)**.**

Cluster 7 (Orange) focuses on agile governance and open innovation, where business process management (BPM), enterprise architecture, knowledge management, and organizational agility play key roles (Currie et al., 2024; Tiwari, 2024). Key themes include administrative data processing and optimization (Ou et al., 2024; Xuan et al., 2024).

Cluster 8 (Purple) addresses long-term strategic planning and sustainable development. Key themes include digital innovation and technological innovation (Ou et al., 2024; Tiwari, 2024; Ustymenko, 2024).

In summary, the eight clusters together provide a rich and balanced view of digital transformation today. The overall picture clearly shows how digital platforms and technologies have redefined enterprise competitiveness.

One of the most striking gaps identified in this bibliometric analysis is the near-total absence of longitudinal research designs in the nexus of digitalization and business process innovation. Due to the small number of studies published from 2010-2015 (combined with zero publications in 2012 and 2014), the evolution and intellectual history of digital transformation in business processes are not represented very well. On top of that, no studies has tracked the same organizations or processes across multiple time points, indicating fragmented knowledge within the field. The absence of a robust theoretical framework in the study of digital innovation creates a significant void that obscures the understanding of underlying causal mechanisms and path dependencies in digital innovation processes, making it difficult to explain why certain innovations succeed or fail in specific contexts.

Research Discussion

This bibliometric analysis provides a comprehensive mapping of the intellectual landscape surrounding the nexus of digitalization and innovation in business processes, revealing a field characterized by rapid evolution, thematic fragmentation, and significant opportunities for deeper integration. The publication evolution, as detailed in the Results, shows a shift from low-volume foundational discourse (2010–2015, <5 publications/year) to explosive growth (2016–2020) and maturation (2021–2024, peaking at >110 documents in 2024).

The Biblioshiny thematic evolution maps further illustrate this progression. The 2010–2015 period laid groundwork with basic automation as a motor theme (Farahani et al., 2016; Kirchmer, 2016); 2016–2020 consolidated digital transformation, data lifecycle governance, and human-centered innovation as pillars (Hof et al., 2016; Kowalkiewicz et al., 2016; Vom Brocke, Fay, Schmiedel, et al., 2016); and 2021–2024 elevated RPA, AI, blockchain, and

sustainability to mature motor themes, with digital transformation becoming a foundational basic theme (Böhmecke-Schwafert, 2024; Shaikh, 2024; Taherdoost et al., 2024; Xuan et al., 2024). Today's research has moved on to discuss how they can carry out large-scale, automated, risk-conscious, well-managed, and sustainability-oriented transformations in an Industry 4.0 and post-pandemic world (Currie et al., 2024; Hof et al., 2016; Moreira & Pádua, 2024; Ou et al., 2024).

A key insight is the pronounced fragmentation in the literature, evident in the co-authorship networks (82 nodes, 18 clusters, with small/disconnected groups indicating localized teams rather than global hubs) (Currie et al., 2024; Moreira & Pádua, 2024). This mirrors broader challenges, such as geographical biases toward developed regions, such as Russia and Germany.

The co-occurrence analysis identifies eight distinct clusters that collectively demonstrate how digitalization acts as both an operational enabler and innovation catalyst. These clusters reveal a multi-layered view, where technologies like AI, IoT, and blockchain intersect with strategic management to foster value creation, sustainability, and competitive advantage across sectors (Gebesmair & Nölleke-Przybylski, 2024; Ou et al., 2024; Xuan et al., 2024).

The identification of research gaps, particularly in temporal and longitudinal dimensions, underscores critical voids that impede theoretical and practical progress. This gap obscures long-term sustainability, employee adaptation, and lifecycle dynamics, perpetuating inefficiencies in strategic management and risk mitigation (Hof et al., 2016; Kowalkiewicz et al., 2016; Wokurka et al., 2016).

5. CONCLUSIONS AND RECOMMENDATIONS

This bibliometric study comprehensively maps the intellectual and thematic evolution of digitalization and innovation in business processes from 2010 to 2024. The analysis reveals a field that has progressed from a low-volume, foundational stage (pre-2016) through rapid post-Industry 4.0 expansion (2016–2020) to a highly productive and mature phase (2021–2024), with annual publications exceeding 110 documents in 2024 alone. Eight distinct thematic clusters emerged, highlighting the multifaceted role of digital technologies ranging from IoT and Industry 4.0-driven manufacturing, AI-enabled automation, and blockchain-supported value chains to sustainability, macroeconomic resilience, and agile BPM governance as key enablers of process innovation and competitive advantage.

Despite this richness, the field remains fragmented, characterized by localized co-authorship networks, complete blind spots in the year 2012 and 2014, and lack of continuous study of the same entities that fail to capture longitudinal dynamics. These gaps limit the development of robust theoretical frameworks.

While this study provides a comprehensive bibliometric exploration of the nexus between digitalization and innovation in business processes, longitudinal studies are urgently needed to address the striking absence of temporal depth in the current literature.

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