University of Tehran Press

Industrial Management Journal

Online ISSN: 3115 - 7386

Homepage: https://imj.ut.ac.ir

Mapping the Digital Servitization Journey: A Meta-Synthetic Framework of Antecedents, Processes, and Outcomes in Industry 4.0

Kimia Momenzadeh[1], **Ayoub Mohammadian** ✉[2], **and Seyed Hamed Vares**[3]

1. Ph.D. Candidate, Department of Business Management, Kish International Campus, University of Tehran, Tehran, Iran. E-mail: kimia.momenzadeh@ut.ac.ir
2. Corresponding author, Associate Prof., Department of Information Technology (IT) Management, Faculty of Technology and Industrial Management, College of Management, University of Tehran, Tehran, Iran. E-mail: mohamadian@ut.ac.ir
3. Associate Prof., Department of Business Strategy and Policymaking, Faculty of Business Management, College of Management, University of Tehran, Tehran, Iran. E-mail: vares@ut.ac.ir

Article Info

Article type:
Research Article

Article history:
Received June 21, 2025
Received in revised form August 28, 2025
Accepted December 16, 2025
Available online January 01, 2026

Keywords:
Digital servitization, industry 4.0, digital transformation, three-stage model

ABSTRACT

Objective: This study aims to conceptualize the structure of digital servitization—the shift from product-centric to digital service-oriented business models. It seeks to integrate fragmented academic literature into a coherent framework and provide practical guidance for managers navigating this transformation.

Methodology: Through a systematic review methodology, a meta-synthesis was conducted to integrate and interpret prior research. Following the retrieval of 140 articles from major academic databases, multiple rounds of screening—based on criteria of quality, relevance, and novelty—culminated in the selection of 20 pivotal studies. These were categorized and analyzed through a conceptual model structured around the antecedents, processes, and outcomes of digital servitization.

Results: Digital servitization can be structured into three core dimensions. Antecedents include technological readiness, human competencies, and organizational culture. Key processes involve designing digital platforms, implementing data-driven services, and reconfiguring business models. Outcomes result in enhanced innovation, organizational agility, and sustainable business performance.

Conclusion: Successful digital servitization requires a systematic approach across antecedents, processes, and outcomes. The proposed framework offers an integrated view of the technological, human, and structural factors involved, helping managers avoid common pitfalls—such as strategy misalignment and employee resistance—and move beyond simple digitalization toward genuine service-based transformation.

Cite this article: Momenzadeh, K., Mohammadian, A., & Vares, H., (2026). Mapping the digital servitization journey: A meta-synthetic framework of antecedents, processes, and outcomes in industry 4.0, *Industrial Management Journal*, 18(1), 117-135. https://doi.org/10.22059/imj.2026.405896.1008272

Publisher: University of Tehran Press.

DOI: https://doi.org/10.22059/imj.2026.405896.1008272

Introduction

In past decades, traditional business models largely focused on selling physical products and maintaining limited interactions with customers. These models were designed for relatively stable market conditions, where demand patterns were predictable, competition was moderate, and product life cycles were long. However, rapid technological advancements, shifting customer expectations, and the intensifying pace of global competition have gradually rendered these models increasingly obsolete (Anke, 2023). In this context, Mozafari Mehr and Taghavifard (2024) demonstrated that digital transformation, particularly in manufacturing industries such as automotive, can facilitate the reinvention of business models and a strategic shift from product-oriented to service-oriented approaches through the adoption of Fourth Industrial Revolution technologies. These findings align with the results of Noudoost and Safdari-Ranjbar (2024) in the offshore oil and gas industry, highlighting the strategic role of digital transformation in enhancing performance and creating value in capital-intensive industries.

The lack of a digital servitization approach in many organizations has led to several critical challenges, including:

- Delivering continuous and interactive value to customers;
- Relying solely on one-time revenue streams from product sales;
- Underutilizing data to create personalized services;
- Responding slowly to market changes and emerging customer needs.

Collectively, these shortcomings have resulted in declining competitiveness and reduced customer satisfaction. Evidence indicates that organizations that have not embraced digital servitization have, on average, lost about 18% of their market share in recent years (Wilson et al., 2024).

In response to these challenges, digital servitization has emerged as a transformative and strategic paradigm. This approach integrates advanced technologies such as artificial intelligence, machine learning, big data analytics, and the Internet of Things into business models, while also shifting the strategic focus from product-centric strategies to value-, experience-, and relationship-oriented perspectives (Wirth et al., 2024; Braidot et al., 2021).

Previously, digital services were mostly limited to online sales or basic customer support. Today, however, they encompass intelligent solutions, predictive customer engagement, and real-time personalized interactions. This transformation is not confined to high-tech sectors; it also

affects traditional industries, including manufacturing, retail, and supply chains (Zhao et al., 2023; Fran Vendrell-Herrero et al., 2024).

Despite its potential, implementing digital servitization remains challenging due to various organizational and cultural barriers (Singh et al., 2024; Hamid, 2022), such as:

- Balancing service flexibility with process control;
- Reconciling human-centric and technology-centric orientations;
- Addressing gaps in technological infrastructure and the digital skills of employees and managers.

Research conducted in markets similar to Iran, particularly in developing countries, indicates that the success of digital servitization is strongly influenced by cultural context, levels of technological maturity, and customer trust (Braidot et al., 2021; Perez & Gomez, 2023; Koui, 2025). These findings align with socio-technical studies on business model resilience, which emphasize the importance of simultaneously considering social factors, technical processes, and institutional contexts when designing and implementing innovative business approaches (Mahghar et al., 2022). Accordingly, digital servitization should not be viewed merely as a technological initiative; rather, it represents a paradigm shift in how value is created, customer relationships are managed, and business structures are designed (Soomra & Petrova, 2024).

Recognizing its strategic importance and understanding the factors that drive or hinder its success is vital for organizations seeking to remain competitive in the digital economy. Conceptualizing digital servitization thus requires theoretical, empirical, and practical exploration, situated at the intersection of digital transformation, service innovation, and business model renewal (Hamid, 2022; Ogigau-Neamtiu & Antonaje, 2019; Yan et al., 2023).

Accordingly, this study aims to analyze and conceptualize digital servitization by developing a comprehensive framework to support its understanding, evaluation, and effective implementation in organizations. To achieve this goal, the study addresses the following research questions:

Main Research Question:

- How can digital servitization be conceptualized in business contexts?

Sub-questions

- What antecedents influence digital servitization?
- Which processes lead to the realization of digital servitization in businesses?
- What are the outcomes of implementing digital servitization on business performance?

In the following sections, the literature review and theoretical foundations are systematically examined and categorized to construct a robust conceptual framework for analyzing the antecedents, processes, and outcomes of digital servitization.

Literature Background

Theoretical Foundations

Servitization, as a transformative approach to business model innovation, has received growing attention over the past few decades. It represents the shift of manufacturing firms from a purely product-focused logic toward offering complementary services that not only enhance product value but also enrich the overall customer experience (Wirth et al., 2024). In essence, servitization provides a strategic pathway for achieving competitive differentiation, higher profitability, and stronger long-term customer relationships (Velasquez-Oviedo et al., 2024).

Since the 1990s, servitization has become increasingly embedded in both academic and industrial discourse, especially within the manufacturing sectors of Europe and the United States. However, while it offers many advantages, studies have shown that improper implementation can lead to operational complexity, rising costs, and reduced efficiency a phenomenon often referred to as the "service paradox" (Vendrell-Herrero et al., 2024).

The success of servitization depends largely on how it is executed, the level of a company's technological capabilities, and its understanding of customer needs. Technological developments have played a foundational role in reshaping service design and delivery across industries. The four industrial revolutions progressively transformed production and value creation: the first and second revolutions introduced mechanization and mass production, while the digitalization era began in the 1970s with the advent of computers and automation (National Geographic, 2024).

Today, with Industry 4.0, the focus has shifted from simple automation to intelligent connectivity, data-driven decision-making, and systematic human machine interaction (Folgado et al., 2024). Technologies such as the Internet of Things (IoT), cloud computing, cyber-physical systems, and big data analytics now allow manufacturers to optimize internal operations efficiently. They also enable intelligent, real-time interactions with external customers. These advances position services not merely as product add-ons but as independent cores of value creation (Shadrouan & Parassai, 2024).

Within this context, digital servitization has emerged. This approach integrates digital technologies with a service-dominant logic, opening new horizons for comprehensive, customer-centric solutions (Glavan & Kulic, 2021). Unlike traditional servitization, which was mostly

limited to online sales or after-sales support, modern organizations now leverage tools such as IoT, artificial intelligence, cloud platforms, and customer data analytics to deliver sophisticated, adaptive, and real-time services (Wirtz et al., 2024). These services include:

- Predictive maintenance,
- Real-time monitoring,
- Software upgrades,
- Analysis of consumer behavior, and
- Personalized recommendations based on operational data (Baines et al., 2023).

Research shows that digital transformation not only increases the level of value creation but also changes the firm–customer relationship, shifting it from a transactional model to a continuous and interactive engagement model (Zhang & Yi, 2024).

Therefore, digital servitization should be understood not merely as an extension of traditional servitization. It is a strategic imperative in the era of digital transformation enabling firms to reinvent business models, enhance customer experiences, and establish sustainable competitive advantages (Vendrell-Herrero et al., 2024).

Literature Review

In the field of digital servitization, many scholars have explored different perspectives. Some of the researchers such as Hameed (2022), and Ogigau-Neamțiu and Antonay (2019) considered the human resources empowering as a requirement for digital servitization. Organizational agility and careful planning for digital change have also been highlighted as crucial factors by Soomra and Petrova (2024, and Zhao et al. (2023). Holloway (2024) underscored the importance of analyzing customer behavior and assessing market needs as essential elements in the digital transformation journey. Furthermore, Wirth et al. (2024) identified the development of technological infrastructure as a foundational enabler for delivering digital value effectively.

At the process level, Yan et al. (2023) discussed the creation of new business models built on digital platforms. Wilson et al. (2024) emphasized the role of smart technologies in enabling personalized customer experiences, while Vial and Grange (2024) examined multichannel interactive service platforms. The financial dimension of digital servitization has also been noted. Braidu et al. (2021), and Glavan and Kulic (2021) highlighted service-based payment systems and digital financial technologies as key components. Additionally, Anke (2023) pointed to real-time intelligent digital support, and Zhang and Yi (2024) identified smart supply and delivery services based on digital supply chains as central processes.

Furthermore, a number of scholars have emphasized the significance of investigating the consequences of servitization, aiming to uncover its strategic and operational advantages. Their research has particularly focused on how servitization contributes to organizational competitiveness, value creation, and long-term performance improvement across various industries. Velásquez Ovidia et al. (2024), and Pérez and Gómez (2023) highlighted enhanced operational efficiency and cost reduction. Vendrell-Herrero et al. (2024) focused on improved customer loyalty and enriched digital purchasing experiences, while Wang et al. (2025) noted strengthened competitive positioning through digital service innovation. Singh et al. (2024) included digital sustainability and corporate social responsibility as important outcomes. Finally, Vial and Grange (2024), and Kuei (2025) emphasized continuous innovation and the development of advanced digital solutions as key long-term results.

A review of previous studies reveals considerable fragmentation in the existing literature on digital servitization. Most prior research has focused on isolated aspects—such as technology adoption, human resources, or business model innovation—without offering an integrated theoretical framework. Consequently, there remains a lack of a comprehensive perspective that captures the complex interplay between technological, organizational, and strategic dimensions of digital servitization. This gap underscores the necessity of employing a systematic approach by considering antecedents, processes and consequences to develop a holistic conceptual model that unifies these dispersed insights and provides a clearer understanding of the phenomenon.

Research Gap and Critical Analysis

A review of previous studies in digital servitization shows that most research has focused on specific aspects of the process rather than examining the full picture. For example, some studies have explored human resource empowerment and technological infrastructure (Hameed, 2022; Ogigau-Neamțiu & Antonay; Wirth et al., 2024). Others have examined personalized customer experiences or transformations in the supply chain (Wilson et al., 2024; Zhang & Yi, 2024), while a few addressed outcomes such as productivity and customer loyalty (Velásquez Ovidia et al., 2024; Vendrell-Herrero et al., 2024).

While each of these contributions improves understanding of certain elements of digital servitization, none have provided an integrated framework that analyzes the interactions among antecedents, processes, and outcomes.

To address this gap, the present study proposes a three-stage model of Antecedent Process Outcome (APO). This framework allows a comprehensive examination of the interplay between technological infrastructure, human resource empowerment, business models, customer

experience, and digital innovation. It effectively maps the entire pathway of digital servitization, from preparation to the realization of value-creating outcomes.

In addition, this study investigates organizational challenges and sources of resistance that have received limited attention in prior research. These include employee skill gaps, resistance to change, and customer distrust toward digital services.

Overall, this research not only fills existing theoretical gaps but also provides a practical foundation for applying the three-stage model across industries. It helps organizations continuously monitor and enhance their digital services while driving strategic transformation efforts.

Materials and Methods

This study aims to conceptualize digital servitization in businesses through a systematic literature review. The systematic review approach, due to its structured and methodical nature, allows for the comprehensive collection, classification, and analysis of relevant scientific evidence. It provides a deeper and more reliable understanding of the concepts, assumptions, and findings reported in previous studies.

Internationally recognized academic databases including ProQuest, Web of Science, Scopus, IEEE Xplore, and Google Scholar were systematically searched. The inclusion criteria targeted studies published between 2019 and 2025, focusing on digital servitization, Industry 4.0, and emerging digital technologies. The year 2019 was selected because it marks the point when this topic gained significant prominence in academic literature, coinciding with the widespread development of Industry 4.0 and the emergence of new conceptual frameworks that allowed a systematic exploration of the phenomenon.

The main search keywords included:

- Digital Servitization, Industry 4.0, Digital Transformation, Smart Services, IoT, and AI in Services.
- To ensure comprehensive coverage, logical operators (AND, OR) were applied, alongside synonyms and related terms such as: service digitalization, digital-enabled services, intelligent services, and artificial intelligence in service management.

In the initial stage, 140 relevant articles were identified. A multi-stage filtering process, combining systematic review and meta-synthesis techniques, was employed to refine the selection:

Stage 1 – Title and Abstract Screening

Articles lacking clear relevance to digital servitization or Industry 4.0 technologies were excluded.

Stage 2 – Quality and Scientific Validity Assessment

Papers with low impact factors, those not peer-reviewed, or published in non-academic outlets were removed.

Stage 3 – Full-Text Evaluation

Remaining studies were examined in depth to assess analytical rigor, conceptual framework development, and innovation in models or findings.

Stage 4 – Thematic Categorization (Antecedents–Processes–Outcomes)

Only studies explicitly analyzing digital servitization within this three-stage model or providing empirically robust data were selected for final synthesis.

After this process, 20 key articles were chosen. These represent the most conceptually rich and scientifically rigorous sources for analyzing and conceptualizing digital servitization. This approach ensured both comprehensiveness and analytical credibility. The four-step review and selection process is illustrated in Figure 1 – Systematic Review Flow Diagram and Selection of Key Articles.

To ensure content validity, inclusion and exclusion criteria were based on theoretical consensus and scholarly credibility indicators established in the digitalization literature. To enhance reliability, the selection and evaluation process underwent multiple rounds of review. Inter-rater agreement was assessed using Cohen's Kappa coefficient, resulting in a value of 0.82, indicating strong agreement between evaluators.

The extracted data included antecedent factors, implementation processes, and outcomes of digital servitization. These were analyzed and integrated using a meta-synthesis approach within a structured analytical framework, allowing identification of core concepts, main categories, and their interrelationships.

As a result, a comprehensive and coherent theoretical framework representing the multidimensional nature of digital servitization was developed. This method facilitated a systematic and in-depth analysis of the concept, enabling effective comparison across studies and supporting the generalization of findings to broader contexts.

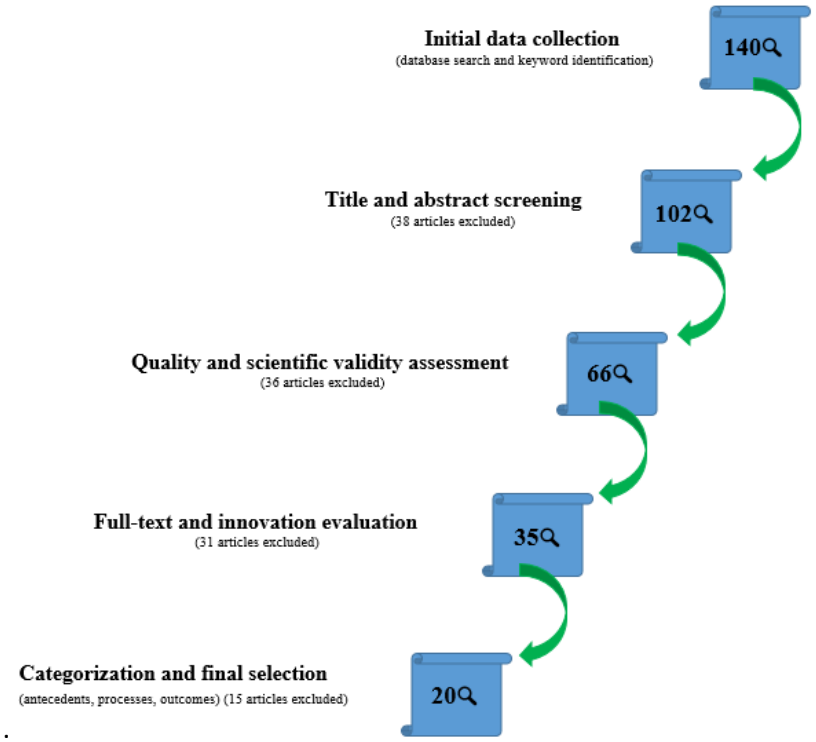

Figure 1. Flow Diagram of the Systematic Review and Selection of Key Articles

Results

This section presents the results of the systematic review and meta-synthesis of academic studies on digital servitization. The goal is to provide a clear and comprehensive overview of research trends, conceptual structures, and the main thematic areas in this field.

Research Growth Trend

To examine the temporal trend of studies, data were retrieved from the Scopus database. As shown in Figure 2, the number of academic publications on digital servitization increased significantly from approximately 230 papers in 2019 to over 800 papers in 2025. This upward trajectory reflects growing academic and industrial interest in integrating digital technologies with service-oriented business models. The intensifying focus on digital transformation, innovation, and sustainability underscores the need for integrative research and deeper conceptual understanding in this emerging domain.

Conceptual Structure and Keyword Co-Occurrence Analysis

Next, to identify the most frequent concepts and their interrelationships, a keyword co-occurrence analysis was conducted, which is a core technique in scientometric research. The analysis was carried out using VOSviewer software, which visually maps the conceptual structure of the digital servitization domain.

The concept density map (Figure 3) shows that terms such as innovation, management, sustainability, and framework have the highest semantic density. This indicates strong research attention on innovation, managerial aspects, and sustainable development. In contrast, terms like digital servitization and business model appear with lower density, suggesting a research gap in the conceptual and theoretical exploration of digital business models and the foundations of digital servitization.

Co-Authorship and Geographical Distribution Analysis

To identify the most active researchers and leading countries in this field, a co-authorship network analysis was performed, following the scientometric model proposed by Hedayatfar and Mohammadian (2024).

Geographically, the United Kingdom, Finland, Sweden, the United States, and Germany emerge as leading research hubs. These countries maintain extensive collaboration networks between universities and industries. Similar patterns of international collaboration have been reported in studies by Ginting et al. (2025), Kolagar et al. (2022), and Khanra et al. (2021).

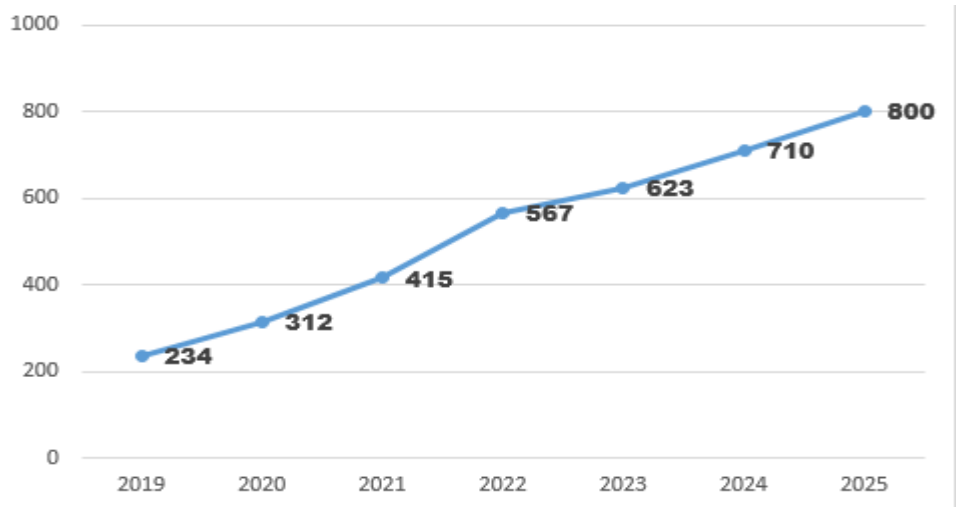

Figure 2. Publication Growth Trend of Digital Servitization Studies in the Scopus Database (2019–2025)

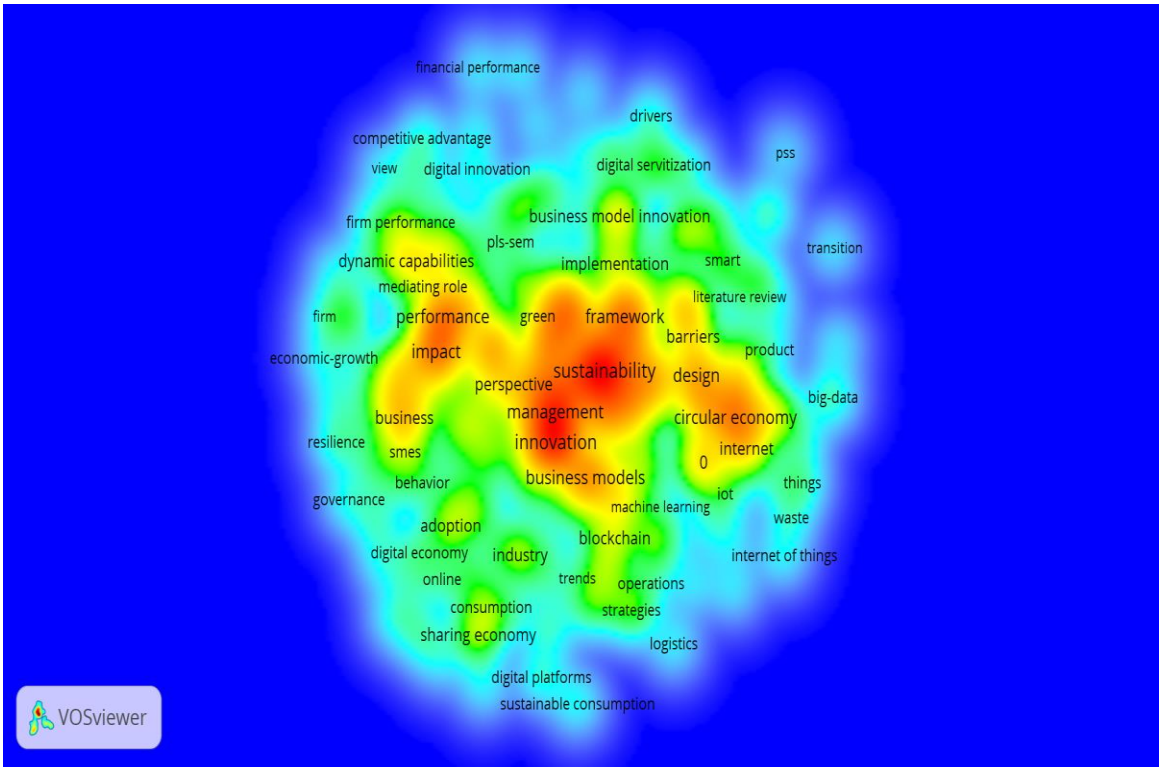

Figure 3. Conceptual Keyword Density Map in the Domain of Digital Servitization

Table 1. The Conceptual Framework of the Research

Main Categories	Subcategories (Reflecting the Concept of Digital Servitization)	Final Codes	References
Antecedents (Key factors prior to implementation)	Customer behavior analysis and market needs assessment for digital transformation	- Growing demand for rapid, personalized, and data-driven services- Evolving customer behavior patterns- Emerging market opportunities	(Vial, 2023; Holloway, 2024)
	Technological infrastructure for delivering digital value	- Expansion of cloud computing- Internet of Things (IoT) integration- Artificial intelligence and data mining applications	(Wirtz et al., 2024; Baines et al., 2023)
	Human resource empowerment for digital change adoption	- Need for employee reskilling and upskilling in digital competencies- Employee resistance to replacing traditional processes with smart technologies- Organizational culture building to support digital innovation	(Hamid, 2022; Ogîgău-Neamţiu & Antonoaie, 2019)

	Business model redesign aligned with digital servitization	- Strategic financial allocation- Targeted investment planning- Developing sustainable strategies	(Yan et al., 2023; Cui, 2025)
	Change planning and organizational agility in the digitalization journey	- Organizational restructuring- Adoption of emerging technologies- Enhancing flexibility and adaptability	(Ogîgău-Neamţiu & Antonoaie, 2019; Somera & Petrova, 2024; Zhao et al., 2023)
Process (Operational and implementation stages)	Personalized service experiences enabled by smart technologies	- Customer data analysis- AI-driven design of intelligent user experiences- Dynamic and adaptive recommendations	(Wilson et al., 2024; Baines et al., 2023)
	Smart supply and delivery services based on digital value chains	- Data-driven logistics- Accelerated and efficient delivery	(Wang et al., 2025; Zhang & Yi, 2024)
	Multi-channel interactive service platforms	- Mobile applications- Service-oriented websites- Conversational chatbots	(Vial, 2024; Baines et al., 2023)
	Service-based payment and digital financial technologies	- Payment convenience- Security of digital transactions- Speed and efficiency of payments	(Braido, Klein & Papaleo, 2021; Glavan & Kolic, 2021; Yan et al., 2023)
	Real-time and intelligent digital support	- Smart chatbots- Automated response systems	(Anke, 2023; Wirth et al., 2024)
Outcomes (Results and consequences)	Enhanced operational efficiency and cost reduction through digital technologies	- Process optimization- Cost minimization- Improved efficiency via automation	(Villacis Uvidia et al., 2024; Pérez & Gómez, 2023)
	Increased customer loyalty and improved digital shopping experience	- Faster service delivery- Optimized purchase experience- Continuous customer support	(Zhang & Yi, 2024; Vendrell-Herrero et al., 2024)
	Strengthened competitive position through digital service innovation	- Greater market competitiveness- Expanded market share- Development of sustainable competitive advantages	(Wang et al., 2025; Villacis Uvidia et al., 2024)
	Digital sustainability and corporate social responsibility management	- Green technology development- Clean digital innovations- Reduction in digital resource consumption	(Zhang, 2024; Singh et al., 2024)
	Continuous innovation and advancement of digital solutions	- Creation of innovative digital business models- Market data analytics for sustainable growth	(Vial, 2024; Cui, 2025)

Findings of the Present Study

Antecedents

This dimension includes the factors and infrastructures that serve as prerequisites for initiating the digital servitization journey:

- Organizations must first gain a clear understanding of digital customers' needs and behaviors, as designing services without market insight is likely to fail.
- Technological infrastructures, such as cloud computing, the Internet of Things (IoT), and big data analytics, provide the backbone for effective servitization.
- Empowering human resources and fostering a technology-receptive culture prepares the organization to embrace service-oriented changes.
- Updating business models and strategically planning investments in digital service solutions are essential steps.
- Finally, organizational agility is crucial for responding to rapid changes in the digital environment and successfully entering the service-oriented space.

Processes

At this stage, the organization moves into the operational execution of digital servitization:

- Delivering personalized experiences for each customer using data analytics and artificial intelligence is one of the most critical actions.
- Transformations in supply chains and smart logistics ensure that products and services are delivered accurately, quickly, and in alignment with customer needs.
- Multi-channel digital platforms, including mobile apps and chatbots, enable real-time, direct interactions with customers.
- Fast and secure digital payment systems play an important role in enhancing the overall customer experience.
- Moreover, real-time digital support fosters ongoing customer trust and satisfaction.

Outcomes

This dimension represents the tangible and intangible results of implementing digital servitization:

- Organizations achieve increased productivity, reduced costs, and optimized processes through service automation.

- Enhanced shopping experiences, faster service delivery, and stronger customer loyalty emerge as additional benefits.
- From a competitive perspective, innovative services reinforce the company's market position and expand its market share.
- Some organizations go further by developing sustainable and socially responsible digital services, fulfilling their corporate social responsibility.
- Ultimately, a focus on continuous innovation in advanced digital services drives the organization into a dynamic cycle of creating sustained value.

The three dimensions antecedents, processes, and outcomes form an interconnected chain, mapping the organization's journey from initial preparation to the full realization of digital servitization.

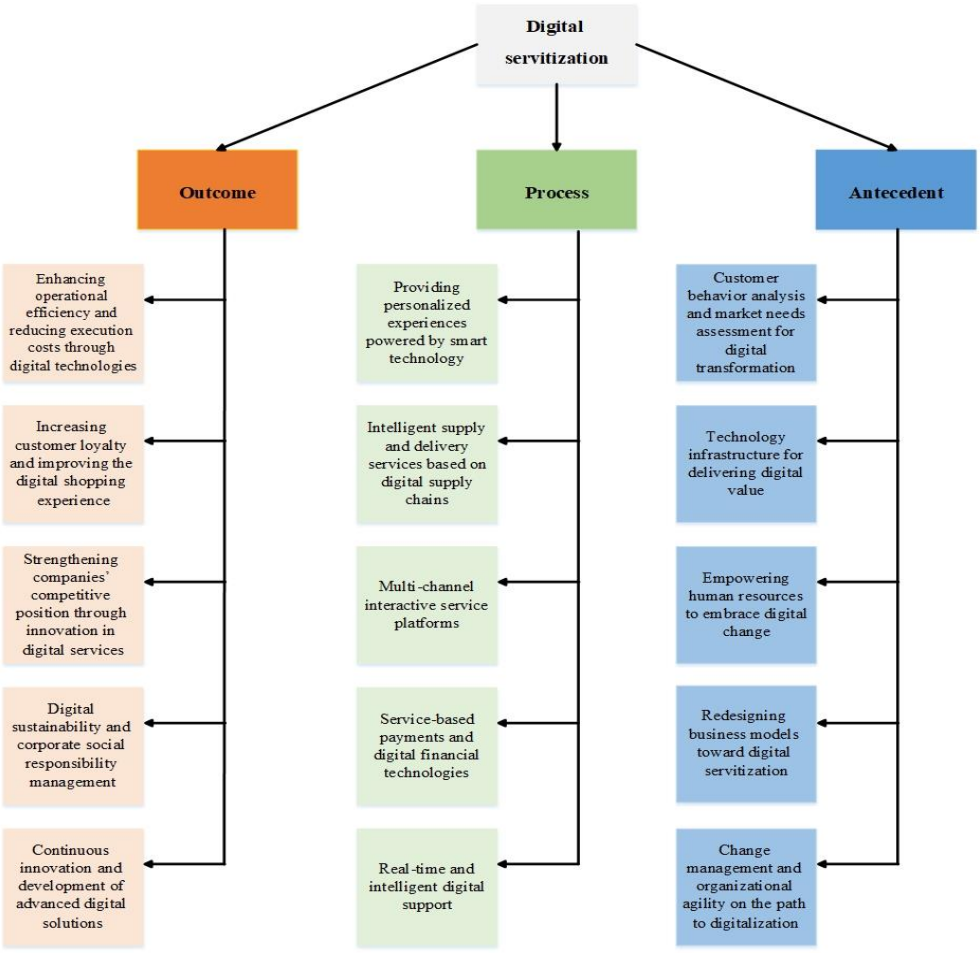

Figure 4. Thematic Network Representing Digital Servitization

Conclusion

This study systematically reviewed the literature and analyzed existing scholarly resources to conceptualize digital servitization in businesses. The findings reveal that transitioning to digital servitization is more than a technological shift it requires a fundamental transformation in mindset, organizational structure, human resources, and value creation processes. This transformation unfolds across three interconnected stages: antecedents, processes, and outcomes, each playing a crucial role in achieving success.

The findings of this study are consistent with previous research by Vial (2024), Baines et al. (2023), and Wirtz et al. (2024), which emphasize that implementing digital services is not limited to technological infrastructure alone, but also requires simultaneous changes in organizational culture, business models, and human resources. The results of this study also align with those of Noadoust and Safdari-Ranjbar (2024) in capital-intensive industries and Mohaghar et al. (2022) regarding the resilience of business models, highlighting the importance of considering technological, social, and organizational factors concurrently for successful digital servitization.

Furthermore, studies by Hameed (2022), and Ogigau-Neamțiu and Antonay (2019) have highlighted human resource empowerment, Soomra and Petrova (2024), and Zhao et al. (2023) emphasized organizational agility and careful planning for digital change, and Wirth et al. (2024) identified the development of technological infrastructure as critical prerequisites for digital servitization.

However, by adopting a systemic approach (Kunc, 2024) and framing digital servitization based on the three-stage Antecedent-Process-Outcome model, this study provides an integrated perspective and addresses gaps that were often overlooked in previous research. Unlike earlier studies that primarily focused on technology or consumer behavior, this research examines the interactions among infrastructure, human resources, business models, and customer experience within a unified framework, effectively filling prior gaps.

The three-stage model, particularly in the context of Industry 4.0, integrates technological, behavioral, organizational, and market-oriented factors into a cohesive conceptual model. It also highlights hidden barriers to service digitalization, such as employee resistance, skill gaps, and customer distrust, which constitute novel contributions of this research.

From a practical standpoint, the study offers actionable guidance for managers, policymakers, and decision-makers. Key recommendations include:

- Continuously analyzing digital customer behavior and leveraging big data to anticipate future needs.

- Investing in digital infrastructure, with a focus on cloud computing, IoT, and AI.
- Providing ongoing employee training and fostering a culture that embraces digital change.
- Redesigning revenue and service models to enable shared and personalized approaches.
- Integrating customer experiences across multi-channel platforms to enhance digital interactions.
- Developing key performance indicators (KPIs) to monitor value creation in digital services.

Despite its comprehensive framework, the study has limitations. The lack of direct field data and practical organizational experiences may restrict the generalizability of the findings across all industries and contexts. This limitation opens avenues for future research to employ empirical data and field studies in diverse industries and cultural or climatic settings, further validating the three-stage antecedent–process–outcome model. Incorporating direct insights from customers and operational stakeholders could also enrich findings and improve practical applicability.

Critically, while the proposed framework is comprehensive, it may oversimplify the complexities of real-world organizations. Heavy reliance on emerging technologies could pose challenges in industries with lower digital maturity. Additionally, much of the existing literature originates from advanced Western industries, so further testing is required to assess the model's applicability in different cultural and economic contexts.

Overall, this research complements existing literature by conceptualizing a systemic, three-stage model for digital servitization, offering an integrated perspective on organizational transformation toward digital service orientation. Based on the findings and acknowledged limitations, the following recommendations are proposed:

- Examine interrelationships among model stages: Future research should empirically explore the bidirectional relationships between antecedents, processes, and outcomes to understand their reciprocal effects.
- Develop business models grounded in digital servitization: While this study focused on process aspects, future work should design and implement business models to assess profitability and economic sustainability.
- Analyze feasibility and economic attractiveness: Researchers should evaluate operational feasibility, economic viability, and links to sustainable development, enabling the creation of practical models for various industries.

- Conduct comparative assessments across industries and cultures: Testing the model in diverse industrial and cultural settings will clarify its adaptability and real-world effectiveness.
- Develop evaluation frameworks for selecting digital servitization models: Future studies should define metrics and criteria to assess organizational readiness and guide selection of the most suitable digital servitization model, offering actionable strategic insights.

Data Availability Statement

Data available on request from the authors.

Acknowledgements

The authors would like to thank all the participants in the present study.

Ethical considerations

The authors declare no potential conflict of interest regarding the publication of this work.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

The authors declare no conflict of interest.

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