

Digital Transformation in General Insurance: Strategies for Competitive Advantage

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ABSTRACT

This study examines how digital transformation contributes to competitive advantage in the general insurance sector through a systematic literature review of 25 peer-reviewed studies published between 2019 and 2025. Following the PRISMA framework, studies were identified, screened, assessed for eligibility and quality, and synthesized thematically. The review identifies five interconnected themes: digital transformation foundations, technological enablers and system integration, competitive advantage mechanisms, organizational enablers and barriers, and InsurTech ecosystem collaboration. The findings show that transformation begins with core process modernization and is strengthened by the integration of artificial intelligence, analytics, cloud computing, automation, and IoT. Competitive advantage emerges through efficiency, differentiation, agility, and innovation when digital capabilities are supported by organizational readiness. Leadership, digital talent, and adaptive culture facilitate transformation, whereas legacy systems, resistance to change, and regulatory complexity constrain it. Insur Tech collaboration further expands capabilities and innovation opportunities. Competitive advantage arises from the interaction of technology integration, organizational readiness, and ecosystem collaboration.

Keywords: *Competitive Advantage, Digital Transformation, Ecosystem Collaboration, General Insurance.*

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1. | INTRODUCTION

The insurance industry, traditionally characterized by complex processes, extensive regulatory requirements, information-intensive activities, and relatively conservative operating structures, is undergoing substantial digital transformation. The increasing availability of digital technologies has created opportunities for insurers to redesign established processes, improve information flows, develop new customer interfaces, and reconsider established business models. Consequently, digital transformation in insurance extends beyond the adoption of individual technologies; it involves changes in processes, business models, customer interactions, organizational structures, and capabilities that reshape how insurers create and capture value (Eckert & Osterrieder, 2020; Verhoef et al., 2021; Yaneva, 2021). From this perspective, digital transformation represents a multidimensional organizational process in which technological development interacts with strategic and operational change.

Recent research demonstrates that digitalization has become increasingly important for insurance firms because it can improve operational efficiency, customer interaction, information processing, and strategic responsiveness while simultaneously creating new competitive pressures (Leão & da Silva, 2021; Pauch & Bera, 2022). The relevance of this transformation is particularly evident in insurance because many core activities depend on the collection, processing, interpretation, and exchange of large volumes of information. Underwriting, pricing, claims management, risk assessment, distribution, and customer service can therefore be affected by the introduction of digital technologies and integrated information systems. Digital transformation can also influence how insurers organize internal activities and coordinate relationships with customers, intermediaries, technology providers, and other ecosystem participants.

Technological development is a major driver of this transformation. Artificial intelligence (AI), big data analytics, cloud computing, blockchain, the Internet of Things (IoT), and automation are increasingly applied across underwriting, pricing, claims management, fraud detection, risk assessment, and customer service (Eckert & Osterrieder, 2020; Eling et al., 2022; Braun & Jia, 2025). These technologies provide insurers with new possibilities for processing information, automating repetitive activities, identifying patterns, supporting risk-related decisions, and developing more responsive services. However, their strategic value depends on integration rather than isolated adoption. Evidence indicates that complementary digital technologies can improve information processing, support faster decision-making, and enable more personalized insurance services (Eckert et al., 2022; Liu et al., 2024). Thus, the effectiveness of digital transformation depends not only on the availability of technologies but also on how effectively they are connected across organizational processes.

Technology investment is also associated with efficiency outcomes, although its effects may differ according to the type of investment and the organizational context in which technologies are implemented (Neale et al., 2025). This suggests that digital

investment should not be viewed as automatically producing superior organizational outcomes. Instead, insurers need to align technological investments with operational requirements, organizational capabilities, and strategic objectives. The integration of digital technologies into existing systems and workflows is therefore an important consideration in determining whether technological resources translate into measurable improvements.

Digital transformation has also altered customer expectations and the competitive basis of insurance services. Digital applications can improve accessibility, responsiveness, personalization, and service quality across major customer touchpoints (Eckert et al., 2022). Customers increasingly interact with insurers through digital channels, creating greater expectations concerning speed, convenience, transparency, and responsiveness. At the same time, InsurTech firms have introduced new approaches to products, distribution, data use, customer engagement, and business models, increasing competitive pressure on incumbent insurers to innovate (Sosa & Montes, 2022; Holland & Kavuri, 2025). The transformation of the insurance value chain therefore increasingly involves digital platforms, data-driven services, technology-enabled processes, and ecosystem relationships rather than conventional firm-centered operations (Sosa & Sosa, 2025).

These developments indicate that digital transformation can affect competition at multiple levels. At the operational level, automation and integrated systems may improve efficiency and responsiveness. At the customer level, digital services may facilitate differentiation through personalization and improved service experiences. At the strategic level, digital capabilities may enable insurers to develop new products, modify distribution approaches, and respond more rapidly to changing market conditions. Nevertheless, the realization of these potential benefits depends on conditions within the organization.

Technological adoption alone does not guarantee competitive advantage. Organizational readiness, leadership commitment, digital skills, adaptive culture, and the ability to reconfigure resources influence whether digital investments generate sustainable outcomes (Al-Smadi, 2025; Nasution et al., 2025; Sukma & Yamnill, 2025). Leadership is important for establishing strategic direction, allocating resources, and coordinating transformation initiatives, while digital skills allow employees to adopt technologies and redesign established workflows. An adaptive organizational culture can further support learning and adjustment as new technologies and processes are introduced. Conversely, legacy systems, skills shortages, resistance to organizational change, and regulatory complexity may constrain implementation and reduce the effectiveness of digital investments (Eckert & Osterrieder, 2020; Pauch & Bera, 2022). Digital transformation should therefore be understood as an organizational capability-building process in which technology, people, processes, and strategy are developed in combination (Verhoef et al., 2021; Shao, 2025).

The role of external collaboration further reinforces this organizational perspective. Insurers increasingly interact with InsurTech firms, technology providers, digital platforms, data-related organizations, and other external actors to obtain specialized capabilities and develop innovative solutions. Such relationships can complement internal resources and contribute to changes in products, services, and business models. The emergence of these interconnected arrangements suggests that competitive advantage may increasingly depend on an insurer's capacity not only to develop internal digital capabilities but also to participate effectively in broader digital ecosystems.

Although the literature has expanded rapidly, existing studies remain fragmented across specific technologies, operational functions, customer applications, organizational capabilities, and InsurTech ecosystems. Some studies examine technological adoption, while others focus primarily on competitiveness, organizational readiness, customer applications, or ecosystem development (Leão & da Silva, 2021; Sosa & Montes, 2022; Liu et al., 2024). This fragmentation makes it difficult to establish a comprehensive understanding of how these dimensions interact and collectively contribute to competitive advantage in general insurance. A more integrated synthesis is therefore needed to connect technological transformation with organizational conditions and ecosystem relationships.

This gap is particularly relevant because evidence from different insurance markets suggests that digital transformation is shaped by institutional, organizational, and market-specific conditions (Yaneva, 2021; Al-Smadi, 2025). Differences in regulatory environments, organizational capabilities, technological maturity, customer expectations, and market structures may influence how insurers implement and derive value from digital transformation. Consequently, understanding digital transformation requires an integrated perspective that considers not only which technologies are adopted but also how they are embedded within organizational processes and connected to external ecosystem actors.

Accordingly, this systematic literature review synthesizes peer-reviewed studies published between 2019 and 2025 to examine how digital transformation contributes to competitive advantage in general insurance. Specifically, the review aims to: (1) identify the principal digital transformation strategies and technologies adopted by insurers; (2) examine the mechanisms through which digital transformation contributes to efficiency, differentiation, agility, and innovation; (3) synthesize organizational enablers and barriers affecting implementation; and (4) integrate these relationships into a conceptual framework linking digital transformation to competitive advantage. By combining technological, organizational, and ecosystem perspectives, this review seeks to provide a more coherent explanation of how insurers can translate digital transformation into sustained competitive outcomes.

2. | LITERATURE REVIEW

Digital Transformation in the Insurance Industry

Digital transformation refers to a fundamental change in how organizations use digital technologies to redesign processes, customer interactions, business models, and mechanisms of value creation. It therefore extends beyond the adoption of individual technologies and encompasses changes in organizational structures, capabilities, routines, and strategic direction (Nadkarni & Prügl, 2021; Verhoef et al., 2021). In the insurance industry, this transformation is particularly significant because insurers rely heavily on information-intensive activities, including underwriting, pricing, risk assessment, claims management, distribution, and customer service.

Eckert and Osterrieder (2020) identify artificial intelligence, cloud computing, big data, and other digital technologies as important drivers of change across insurance activities. These technologies enable insurers to process larger volumes of information, automate selected activities, and establish more integrated operational processes. Digital transformation also affects how insurers interact with customers and distribute their products. Digital applications can improve accessibility, responsiveness, personalization, and service quality, while enabling insurers to develop more customer-oriented approaches to service delivery (Eckert et al., 2022).

The transformation of insurance should consequently be viewed as a multidimensional process rather than a sequence of isolated technological implementations. Technology adoption must be accompanied by changes in organizational capabilities, processes, and strategic priorities. Leão and da Silva (2021) emphasize that the competitive effects of digital transformation depend on how digital resources are incorporated into organizational strategies and capabilities. Similarly, the insurance literature indicates that digital technologies can reshape established value chains and create new opportunities for operational and customer-related innovation (Eckert & Osterrieder, 2020; Eckert et al., 2022). This perspective provides the conceptual foundation for understanding digital transformation in general insurance as a process of technological modernization, organizational adaptation, and value-creation transformation. It also establishes the basis for examining how digital technologies subsequently influence insurance processes, customer value, competitive positioning, and business-model development.

Digital Technologies, Process Transformation, and Customer Value

Digital technologies constitute an important operational foundation of transformation in the insurance industry. Artificial intelligence (AI), big data analytics, cloud computing, blockchain, and related technologies can be applied throughout the insurance value chain to support risk assessment, underwriting, pricing, fraud detection, claims processing, and customer interaction (Eckert & Osterrieder, 2020; Eling et al., 2022). Their contribution, however, is not necessarily determined by the adoption of individual technologies. Greater value can emerge when complementary technologies are integrated into interconnected processes and systems.

Artificial intelligence provides a particularly important example because its applications can extend across multiple stages of insurance operations. Eling et al. (2022) demonstrate that AI can support risk evaluation, claims management, information processing, and assessments concerning the insurability of risks. Such applications can improve the capacity of insurers to process information and support more data-driven operational decisions. Cloud computing can further provide scalable infrastructure that enables digital applications and information systems to operate across organizational functions (Eckert et al., 2022).

Digital transformation also changes the relationship between insurers and customers. Digital channels can facilitate faster communication, broader accessibility, more responsive services, and increased opportunities for personalization. Eckert et al. (2022) highlight the growing relevance of digital applications for customer satisfaction and service management. Consequently, process transformation is closely connected to customer-value creation because improvements in internal information processing and service delivery can influence how customers experience insurance products and services.

At the industry level, InsurTech further contributes to this transformation by introducing technology-enabled products, services, distribution models, and forms of interaction. Sosa and Montes (2022) show that InsurTech development involves different innovation patterns that contribute to changes in the traditional structure of the insurance industry. These developments suggest that digital technologies are not simply tools for improving existing processes; they can also facilitate new forms of value creation and interaction among insurers, customers, technology providers, and other market participants.

Competitive Advantage, Organizational Readiness, and InsurTech Ecosystems

Digital transformation can contribute to competitive advantage through several interconnected mechanisms, including operational efficiency, service differentiation, innovation, customer value, and organizational responsiveness. Leão and da Silva (2021) demonstrate that the competitive implications of digital transformation are associated with changes in organizational resources, capabilities, processes, and strategic positioning. Digital technologies may therefore create opportunities for improved performance, but technology investment alone does not guarantee competitive outcomes. The strategic value of digital transformation depends on how technological resources are integrated into organizational capabilities and business objectives.

Organizational readiness consequently represents an important condition for successful transformation. Leadership commitment can support strategic alignment, resource allocation, and coordination of digital initiatives, while digital skills enable employees to use new technologies and adapt established workflows. Adaptive organizational structures can further facilitate experimentation, learning, and implementation. Conversely, legacy information systems, capability gaps, resistance to

organizational change, and regulatory complexity can constrain transformation. These challenges are particularly relevant in insurance because digital initiatives must be integrated with established operational processes and regulatory requirements (Eckert & Osterrieder, 2020; Al-Smadi, 2025; Nasution et al., 2025).

Competitive dynamics are also increasingly influenced by InsurTech ecosystems. Rather than developing every digital capability internally, insurers can collaborate with technology firms, platforms, data providers, and other external actors. Sosa and Montes (2022) demonstrate that InsurTech innovation involves interconnected actors and capabilities that contribute to changes in insurance markets. Such collaboration can provide access to specialized knowledge, technological expertise, and innovative solutions.

Accordingly, competitive advantage in digital insurance can be understood as the outcome of interaction among technological integration, organizational readiness, and ecosystem collaboration. This integrated perspective provides the theoretical basis for the conceptual framework developed in this review, in which digital transformation connects technological capabilities with organizational and external ecosystem conditions to support efficiency, differentiation, agility, and innovation.

3. | RESEARCH METHOD

This study employed a Systematic Literature Review (SLR) to systematically identify, evaluate, and synthesize peer-reviewed studies examining digital transformation, technological innovation, competitive advantage, organizational capabilities, and ecosystem dynamics in the general insurance sector. The SLR approach was selected because it provides a transparent and structured procedure for identifying relevant evidence from diverse studies and synthesizing findings according to predefined criteria. The unit of analysis was peer-reviewed journal articles addressing digital transformation and its strategic, technological, and organizational implications for insurance.

The literature search was conducted across Scopus, Web of Science, ScienceDirect, Emerald Insight, SpringerLink, and Google Scholar, covering publications from 2019 to 2025. Search terms were developed around the core concepts of digital transformation, digital technologies, technological innovation, organizational capabilities, competitive advantage, and insurance. Boolean operators were applied to combine and refine the search terms and improve the identification of relevant studies. Retrieved records were subsequently assessed for relevance, availability of full text, publication period, and compliance with the predefined inclusion and exclusion criteria.

The study selection process followed the PRISMA framework, comprising identification, screening, eligibility assessment, and final inclusion. The initial search retrieved 487 records. After the removal of 89 duplicate records, 398 records remained for title and abstract screening. During screening, 247 records were excluded because they did not sufficiently address the research objectives or relevant aspects of digital transformation in insurance. The remaining 151 articles proceeded to full-text eligibility

assessment. A further 126 articles were excluded because they did not satisfy the predefined eligibility requirements. Consequently, 25 peer-reviewed studies were included in the final synthesis. The complete selection process is presented in Table 1 and Figure 1, while the detailed inclusion and exclusion criteria are provided in Table 2.

Table 1. PRISMA Flow Summary

Stage	Description	Number of Studies
Identification	Records retrieved from databases	487
	Duplicates removed	89
Screening	Records screened by title/abstract	398
	Records excluded	247
Eligibility	Full-text articles assessed	151
	Articles excluded	126
Included	Final studies included in synthesis	25

Study selection was guided by predefined inclusion and exclusion criteria. Included studies had to be published between 2019 and 2025, be available in full text, address digital transformation, technological innovation, competitive advantage, insurance operations, or InsurTech ecosystems, and examine general insurance or comparable financial-service contexts. Studies published in Scopus- or Web of Science-indexed journals and nationally accredited SINTA 1–2 journals were considered. Conference papers, opinion essays, non-peer-reviewed publications, duplicate records, studies without clear methodological descriptions, and studies unrelated to the research focus were excluded.

Table 2. Criteria Relevance and Quality

Criteria Type	Description
Inclusion	(1) Published in Scopus-indexed or Web of Science journals, or nationally accredited SINTA 1–2 journals; (2) Focuses on digital transformation, technological innovation, competitive advantage, insurance operations, or InsurTech ecosystems; (3) Examines the general insurance sector or comparable financial services settings; (4) Full-text accessible; (5) Published between 2019 and 2025; (6) Written in English or Indonesian.
Exclusion	(1) Conference papers, opinion essays, or non-peer-reviewed sources; (2) Articles not addressing digital transformation or competitive advantage; (3) Studies without clear methodological descriptions; (4) Duplicate or overlapping publications.

The complete identification, screening, eligibility, and inclusion process is presented in the PRISMA flow diagram.

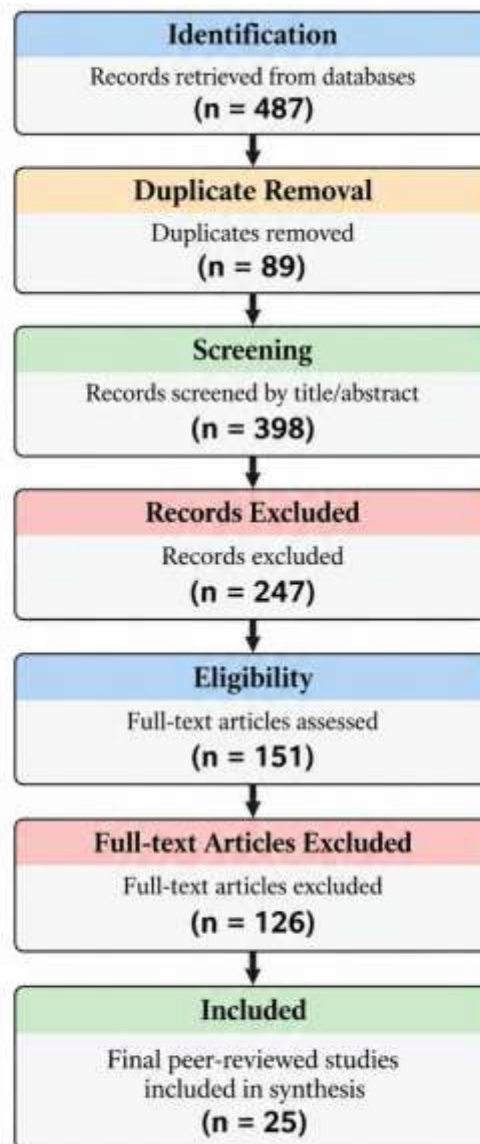


Figure 1. PRISMA flow diagram of the study identification, screening, eligibility, and inclusion process

To assess the methodological quality of the included studies, the Critical Appraisal Skills Programme (CASP) and the Joanna Briggs Institute (JBI) Critical Appraisal Checklist were applied according to the design of each study. The assessment considered the clarity of research objectives, methodological rigor, appropriateness of data collection, transparency of analysis, and consistency between evidence and conclusions. Of the 25 included studies, 18 were classified as high quality, 6 as moderate quality, and 1 as low quality.

Table 3. Quality Appraisal of Included Studies

Quality Category	Criteria Description	Number of Articles (n = 25)	Representative Studies
High Quality	Clear research design, robust interpretation, strong alignment between evidence and conclusions	18	Eckert & Osterrieder (2020); Eckert et al. (2022); Leão & da Silva (2021); Eling et al. (2022); Sosa & Montes (2022); Liu et al. (2024); Nasution et al. (2025); Al-Smadi (2025); Sosa & Sosa (2025); Śliwiński et al. (2025)
Moderate Quality	Adequate methodological description with limited analytical depth	6	Musaigwa (2024); Yaneva (2021); Sukma & Yamnill (2025); Braun & Jia (2025); Holland & Kavuri (2025); Neale et al. (2025)
Low Quality	Conceptually relevant but lacking methodological transparency or rigor	1	Shao (2025)
Total		25	

Finally, data were analyzed using thematic synthesis. The analysis involved open coding to identify relevant concepts, axial coding to group related concepts into broader themes, and selective coding to establish relationships among the themes. The resulting synthesis was used to develop an integrated conceptual framework linking digital transformation initiatives with competitive advantage in general insurance.

4. | RESULTS

The systematic literature review identifies five interconnected themes explaining how digital transformation contributes to competitive advantage in the general insurance sector: conceptual foundations of digital transformation, technological enablers and system integration, strategic mechanisms for competitive advantage, organizational enablers and barriers, and InsurTech ecosystem collaboration. The original thematic synthesis of 25 studies indicates that digital transformation extends beyond technological adoption and involves the coordinated development of digital infrastructure, organizational capabilities, and collaborative relationships. The distribution of the five themes is summarized in Table 4.

Table 4. Summary of Thematic Patterns Identified in the Reviewed Studies

Emerging Theme	Key Findings	Frequency (n = 25)
Conceptual Foundations of Digital Transformation in Insurance	Digital transformation begins with modernization of core processes, digital workflow redesign, and data-driven decision-making.	20 studies
Technological Enablers and System Interdependencies	AI, analytics, cloud, IoT, and automation operate synergistically to strengthen accuracy, speed, and personalization.	22 studies
Strategic Mechanisms for Achieving Competitive Advantage	Cost efficiency, differentiation, agility, and innovation emerge when technological adoption aligns with strategic intent.	19 studies
Organizational Factors, Enablers, and Barriers	Leadership, talent, and culture enable success; legacy IT, resistance to change, and regulatory constraints remain major barriers.	18 studies
InsurTech Ecosystem Dynamics and Collaborative Value Creation	Ecosystem partnerships expand capabilities, accelerate innovation, and support omnichannel customer experience.	16 studies

The first theme concerns the modernization of core insurance operations. Digital transformation involves replacing fragmented and predominantly manual procedures with integrated workflows, centralized information systems, and data-driven decision-making. The reviewed literature identifies underwriting, pricing, claims processing, customer service, and related administrative activities as important areas of transformation. Eckert and Osterrieder (2020) demonstrate that digital technologies can be applied across interconnected stages of the insurance value chain, enabling insurers to integrate information and improve operational processes. Similarly, Eling et al. (2022) identify opportunities for artificial intelligence (AI) to enhance information processing, risk-related analysis, and operational decision-making. The modernization of these core processes therefore provides an important foundation for broader transformation because improvements in internal workflows can subsequently support changes in products, distribution channels, customer engagement, and business models.

The second theme highlights the integration of digital technologies as a central component of transformation. Artificial intelligence and machine learning support risk assessment, predictive analysis, fraud detection, underwriting, and claims automation. Big data analytics strengthens information processing and enables insurers to analyze customer and operational data for segmentation and decision-making, while cloud computing provides scalable infrastructure for interconnected digital services. Internet

of Things (IoT) technologies further expand opportunities for real-time risk monitoring and usage-based insurance models. However, the strategic contribution of these technologies depends less on isolated adoption than on their integration and complementarity. Eckert and Osterrieder (2020) emphasize the interdependencies among digital technologies and the need for a comprehensive digital strategy. Eling et al. (2022) similarly demonstrate that AI applications can extend across multiple stages of the insurance value chain rather than being restricted to individual operational functions. The findings therefore indicate that technological integration is most valuable when digital tools operate as interconnected capabilities supporting broader organizational objectives.

The third theme concerns the mechanisms through which digital transformation contributes to competitive advantage. Four principal mechanisms emerge from the synthesis: operational efficiency, service differentiation, organizational agility, and innovation capability. Automation and integrated information systems can reduce repetitive activities, improve process consistency, minimize delays, and accelerate operational decision-making. Digital customer interfaces and data-driven services create opportunities to provide more personalized and responsive interactions, strengthening service differentiation. At the organizational level, adaptable digital infrastructure can facilitate faster responses to changes in customer expectations, competitive conditions, and market requirements. Digital capabilities can also support the development and modification of insurance products and services, thereby strengthening innovation capability. These findings indicate that technology adoption creates the potential for strategic value, but competitive outcomes depend on whether digital capabilities are effectively embedded within business processes, organizational routines, and strategic priorities. This interpretation is consistent with the broader finding that digital transformation affects competitive advantage through the organizational integration of technological resources rather than through technology adoption alone (Leão & da Silva, 2021).

The fourth theme identifies organizational conditions that enable or constrain digital transformation. Leadership commitment, digital talent, agile organizational structures, and an adaptive culture provide important foundations for implementation. Leadership contributes to strategic alignment, coordination, and resource allocation, while digital skills enable employees to adopt new technologies and redesign established workflows. An adaptive organizational culture can further support experimentation, learning, and adjustment during transformation. Conversely, legacy IT infrastructure can create integration difficulties, while organizational resistance may slow the adoption of new systems and working practices. Insufficient technological expertise can limit the effective use of digital tools, and regulatory complexity can create additional implementation challenges for insurers operating in highly regulated environments. These findings demonstrate that technological investment and organizational readiness need to be considered together. Digital transformation is therefore not solely a technological process but also an organizational change process

requiring appropriate capabilities, structures, leadership, and culture. The principal organizational enablers and barriers identified in the synthesis are presented in Table 5.

Table 5. Organizational Enablers and Barriers Affecting Digital Transformation

Category	Factors	Explanation	Factors
Enablers	Leadership Commitment	Clear strategic direction, resource allocation, and regulatory navigation that support transformation initiatives.	Leadership Commitment
	Digital Talent and Skills	Availability of professionals in analytics, system integration, and digital product development that accelerate adoption.	Digital Talent and Skills
	Agile Structures and Culture	Flexible workflows, experimentation mindset, and cross-functional coordination enabling rapid scaling of digital initiatives.	Agile Structures and Culture
Barriers	Legacy Systems	Outdated or fragmented infrastructures that complicate integration and restrict real-time data capabilities.	Legacy IT Systems
	Cultural Resistance	Risk-averse norms and reluctance toward digital workflows that slow transformation.	Cultural Resistance
	Regulatory Complexity	Compliance constraints that delay deployment of digital tools and limit innovation speed.	Regulatory Complexity

The fifth theme concerns the contribution of InsurTech ecosystems to digital transformation. Insurers increasingly interact with technology providers, data platforms, digital intermediaries, and InsurTech firms to access specialized resources and expand innovation opportunities. Sosa and Montes (2022) identify interconnected patterns of InsurTech innovation that contribute to changes in insurance products, services, and market structures. These relationships can support technology integration, knowledge exchange, new distribution arrangements, and business-model innovation. Ecosystem collaboration therefore complements internal organizational capabilities rather than replacing them.

Taken together, the five themes support an integrated conceptual framework in which technological integration, organizational readiness, and ecosystem collaboration constitute interconnected conditions of digital transformation. These conditions influence process modernization, product development, and business-model adaptation, creating potential pathways toward efficiency, differentiation, agility, and innovation capability. Figure 2 illustrates the relationships identified in the thematic synthesis. The framework represents a conceptual integration of the reviewed literature rather than a statistically tested causal model.

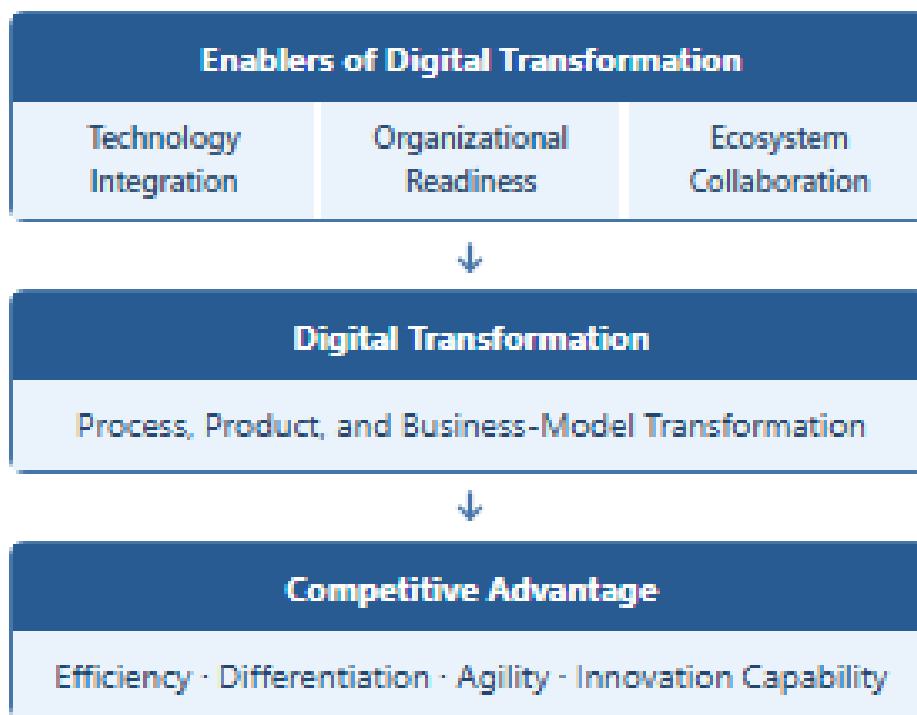


Figure 2. Integrated Conceptual Framework of Digital Transformation and Competitive Advantage in General Insurance

The synthesis indicates that digital transformation in general insurance is a multidimensional process. Its potential competitive contribution emerges through the interaction of technological capabilities, organizational conditions, and ecosystem relationships. These findings provide the basis for the subsequent discussion of strategic implications, theoretical contributions, and remaining research gaps.

5. | DISCUSSION

The findings of this systematic literature review indicate that digital transformation in general insurance is best understood as an integrated process involving technological, organizational, and ecosystem dimensions. Consistent with the literature reviewed, transformation begins with the modernization of core operational processes and progressively extends toward changes in products, services, customer interactions, and business models. Digital transformation therefore represents more than the adoption of new technologies; it involves restructuring organizational processes, capabilities, and mechanisms of value creation. This interpretation is consistent with research emphasizing that digital transformation combines technological change with organizational and strategic transformation (Eckert & Osterrieder, 2020; Leão & da Silva, 2021; Verhoef et al., 2021). In the insurance context, this integrated perspective is particularly important because digital technologies affect multiple stages of the insurance value chain rather than a single operational function.

The strong presence of technological enablers in the reviewed studies demonstrates the importance of integrating artificial intelligence (AI), data analytics, cloud computing, automation, and related digital technologies. However, their contribution to transformation is not determined simply by whether an insurer adopts individual technologies. Instead, value emerges when these technologies operate as complementary capabilities across interconnected insurance activities. Digital technologies can support risk assessment, underwriting, claims management, fraud detection, customer service, and decision-making, thereby improving the speed and quality of operational processes (Eckert & Osterrieder, 2020; Eling et al., 2022). The findings therefore suggest that technology integration provides an important operational foundation for improving efficiency, responsiveness, and the ability to manage increasingly data-intensive insurance activities.

The findings also demonstrate that competitive advantage is not an automatic consequence of technological investment. Efficiency, differentiation, agility, and innovation capability emerge when digital resources are embedded within appropriate organizational structures, managerial processes, and strategic priorities. This interpretation reinforces evidence that the competitive effects of digital transformation depend on how technological resources are combined with organizational capabilities and strategic objectives (Leão & da Silva, 2021). Consequently, insurers may obtain limited benefits from technology when implementation is disconnected from organizational processes or when employees lack the capabilities required to use new systems effectively.

Organizational conditions consequently represent an important mechanism in the transformation process. The reviewed evidence highlights leadership commitment, digital talent, organizational learning, and adaptive culture as factors that can facilitate transformation. Leadership is particularly relevant because transformation requires coordination across functions, investment decisions, changes in established routines, and sustained organizational commitment. Conversely, legacy information systems, resistance to organizational change, capability gaps, and regulatory complexity can constrain implementation. Recent evidence from insurance organizations similarly emphasizes organizational readiness as an important condition for translating digital investment into organizational and performance outcomes (Al-Smadi, 2025; Nasution et al., 2025). Thus, technological modernization needs to be accompanied by organizational adaptation rather than treated as an independent IT initiative.

Another important finding concerns the growing role of InsurTech ecosystems and interorganizational collaboration. Collaboration with technology firms, digital platforms, data providers, and other external actors enables insurers to access specialized knowledge, technological capabilities, and innovative solutions that may be difficult to develop internally. This ecosystem perspective reflects the increasing interconnectedness of insurance innovation, in which value creation can occur through partnerships rather than solely within individual firms (Sosa & Montes, 2022; Sosa &

Sosa, 2025). Ecosystem collaboration can therefore complement internal capabilities and accelerate the development of new digital products, services, and business models.

Overall, the findings support the integrated framework presented in Figure 2, in which technology integration, organizational readiness, and ecosystem collaboration function as mutually reinforcing dimensions of digital transformation. Their interaction creates pathways toward greater efficiency, differentiation, agility, and innovation capability. The contribution of this review therefore lies in connecting technological transformation with the organizational and ecosystem conditions required for its effective implementation, rather than treating digitalization as an isolated technological phenomenon.

6. | CONCLUSION

This systematic literature review examined how digital transformation contributes to competitive advantage in the general insurance sector based on 25 peer-reviewed studies published between 2019 and 2025. The synthesis identifies five interconnected themes: conceptual foundations of digital transformation, technological enablers and system integration, strategic mechanisms for competitive advantage, organizational enablers and barriers, and InsurTech ecosystem collaboration. The findings demonstrate that digital transformation begins with the modernization of core insurance processes, including underwriting, pricing, claims management, and customer services. Technologies such as artificial intelligence, analytics, cloud computing, automation, and IoT provide important technological foundations, but their strategic value depends on effective integration across organizational processes. Digital transformation contributes to competitive advantage through improved efficiency, differentiation, agility, and innovation capability.

The review further demonstrates that technological investment alone is insufficient to achieve sustainable outcomes. Leadership commitment, digital talent, adaptive organizational structures, and supportive cultures enable transformation, whereas legacy systems, resistance to change, and regulatory complexity may constrain its implementation. In parallel, collaboration with InsurTech firms, technology providers, and digital platforms expands access to specialized capabilities and supports innovation. The review proposes an integrated perspective in which technology integration, organizational readiness, and ecosystem collaboration jointly support digital transformation and create pathways toward competitive advantage. This perspective highlights digital transformation as an organizational and strategic process rather than merely a technological initiative. Future research should strengthen empirical evidence through longitudinal and comparative studies across insurance markets and examine emerging issues including digital governance, ethical AI, cybersecurity, and data-driven risk management.

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Ethical approval was obtained for this study. The manuscript represents original work and has not been previously published, nor is it under consideration by another journal.

Data Disclosure Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

REFERENCES

- Al-Smadi, M. O. (2025). Insurance sector readiness for digital transformation: Empirical evidence from Jordan. *Insurance Markets and Companies*, 16(1), 33-41. [https://doi.org/10.21511/ins.16\(1\).2025.03](https://doi.org/10.21511/ins.16(1).2025.03)
- Braun, A., & Jia, R. (2025). InsurTech: Digital technologies in insurance. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 50(1), 1-7. <https://doi.org/10.1057/s41288-024-00344-x>
- Cosma, S., & Rimo, G. (2024). Redefining insurance through technology: Achievements and perspectives in Insurtech. *Research in International Business and Finance*, 70, 102301. <https://doi.org/10.1016/j.ribaf.2024.102301>
- Eckert, C., & Osterrieder, K. (2020). How digitalization affects insurance companies: overview and use cases of digital technologies. *Zeitschrift für die gesamte Versicherungswissenschaft*, 109(5), 333-360. <https://doi.org/10.1007/s12297-020-00475-9>
- Eckert, C., Neunsinger, C., & Osterrieder, K. (2022). Managing customer satisfaction: digital applications for insurance companies. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 47(3), 569-602. <https://doi.org/10.1057/s41288-021-00257-z>
- Eling, M., Nuessle, D., & Staubli, J. (2022). The impact of artificial intelligence along the insurance value chain and on the insurability of risks: M. Eling et al. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 47(2), 205-241. <https://doi.org/10.1057/s41288-020-00201-7>
- Gatzert, N., & Osterrieder, K. (2020). The future of mobility and its impact on the automobile insurance industry. *Risk Management and Insurance Review*, 23(1), 31-51. <https://doi.org/10.1111/rmir.12140>
- Harianja, L. R., Sugianto, S., & Daulay, A. N. (2024). Systematic literatur riview: Analisis transformasi digital industri asuransi potensi (Insurtech) di Indonesia. *Jurnal Manajemen Terapan Dan Keuangan*, 13(02), 466-480. <https://doi.org/10.22437/jmk.v13i02.33280>
- Holland, C. P., & Kavuri, A. S. (2025). Insurtech strategies: A comparison of incumbent insurance firms with new entrants: CP Holland and AS Kavuri. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 50(1), 78-105. <https://doi.org/10.1057/s41288-024-00341-0>
- Leão, P., & da Silva, M. M. (2021). Impacts of digital transformation on firms' competitive advantages: A systematic literature review. *Strategic Change*, 30(5), 421-441. <https://doi.org/10.1002/jsc.2459>
- Liu, M., Yang, H., & Zheng, S. (2024). Index construction and application of digital transformation in the insurance industry: Evidence from China. *Plos one*, 19(1), e0296899. <https://doi.org/10.1371/journal.pone.0296899>
- Musaigwa, M. (2024). From traditional to digital: Transforming business models in the insurance sector. *International Journal of Development and Sustainability International Journal of Development and Sustainability*, (13 1), 68-86.

- Nadkarni, S., & Prügl, R. (2021). Digital transformation: a review, synthesis and opportunities for future research: S. Nadkarni, R. Prügl. *Management Review Quarterly*, 71(2), 233-341. <https://doi.org/10.1007/s11301-020-00185-7>
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 48(8), 103773. <https://doi.org/10.1016/j.respol.2019.03.018>
- Nasution, H., Muafi, M., El-Qadri, Z. M., & Suprihanto, J. (2025). Impact of digital business transformation on organizational ambidexterity and performance in indonesian insurance firms. *Intangible Capital*, 21(1), 1-20.
- Neale, F. R., Drake, P. P., Jin, L., & Lai, G. (2025). Technology investment and insurer efficiency. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 50(1), 8-33. <https://doi.org/10.1057/s41288-024-00327-y>
- Pauch, D., & Bera, A. (2022). Digitization in the insurance sector—challenges in the face of the COVID-19 pandemic. *Procedia Computer Science*, 207, 1677-1684. <https://doi.org/10.1016/j.procs.2022.09.225>
- Shao, W. (2025). The role of digital transformation in enhancing organizational agility and competitive advantages: A strategic perspective. *Advances in Economics Management and Political Sciences*, 154(1), 115-120. <https://doi.org/10.54254/2754-1169/2024.19552>
- Śliwiński, A., Kurylowicz, L., & Pajewska-Kwaśny, R. (2025). digital transformation and innovation in the insurance sector: Processes, technologies, and challenges. *Wiadomości Ubezpieczeniowe*, 2(2025/2), 10-33995. <https://doi.org/10.33995/wu2025.2.6>
- Sosa, I., & Montes, Ó. (2022). Understanding the InsurTech dynamics in the transformation of the insurance sector. *Risk Management and Insurance Review*, 25(1), 35-68. <https://doi.org/10.1111/rmir.12203>
- Sosa, I., & Sosa, S. (2025). Building an InsurTech ecosystem within the insurance industry. *Risks*, 13(6), 108. <https://doi.org/10.3390/risks13060108>
- Sukma, N., & Yamnill, S. (2025). Unlocking the future of insurance: The power of open data, digital transformation, and human talent. *Human Resource Development Quarterly*. <https://doi.org/10.1002/hrdq.70002>
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889-901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- Wanyan, R., Zhao, T., Suo, L., & Lai, G. C. (2025). Digital transformation and total factor productivity in insurance companies: A catalyst or inhibitor? R. Wanyan et al. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 50(1), 142-184. <https://doi.org/10.1057/s41288-024-00340-1>
- Yaneva, T. (2021). Digital transformation of insurance sector. *Известия на Съюза на учените-Варна. Серия Икономически науки*, 10(1), 97-104.