Factors Influencing and Their Relationships in Platform-Based Insurance Service Providers in Iran

Shahab. Razban[1], Sahar. Kosari[1*], Moahammad. Reza Sanaei[1]

[1.] Department of Information Technology Management, Qa.C., Islamic Azad University, Qazvin, Iran

*** Corresponding author email address:** kosari@nrisp.ac.ir

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Abstract

This study aims to identify and structurally analyze the key driving forces and critical uncertainties shaping the future of platform-based digital insurance service businesses in Iran. This applied, exploratory–explanatory study adopted a qualitative foresight-oriented design. First, a systematic literature review (2015–2024) was conducted using Scopus, Web of Science, and SID databases to extract initial driving forces. Subsequently, semi-structured interviews were carried out with 20 purposively selected experts from the fields of insurance, fintech, public policy, and digital economy, meeting predefined expertise criteria. Thematic analysis (open, axial, and selective coding) was performed using MAXQDA to refine the drivers. Fifteen driving forces were identified and validated through a classical Delphi process. Experts assessed each driver's impact and uncertainty using a five-point Likert scale. Structural analysis was then conducted through a 15×15 cross-impact matrix using MICMAC to determine driving power and dependence levels. Drivers were classified into four categories: Drivers, Linkage, Dependent, and Autonomous variables. Based on impact–uncertainty scores and structural positioning, critical uncertainties were extracted and consolidated into two main scenario axes. Results indicate that international sanctions (Mean Impact = 4.9; Uncertainty = 4.8) and political stability (Impact = 4.7; Uncertainty = 4.6) exhibit the highest structural driving power and low dependence, classifying them as primary Drivers. Government policy orientation, exchange rate stability, global fintech developments, and access to advanced technologies were positioned as Linkage variables with both high influence and high dependence, reflecting systemic sensitivity. Dependent variables included digital trust, venture capital investment, purchasing power, digital literacy, and lifestyle change, indicating outcome-oriented dynamics. Autonomous variables such as insurance regulations and internet penetration demonstrated limited structural influence. Two critical uncertainties were ultimately identified: (1) the macro political–international environment and (2) domestic policy orientation and economic stability, forming the basis of a 2×2 scenario matrix. The future trajectory of digital insurance platforms in Iran is more strongly conditioned by the quality and stability of domestic policymaking than by external geopolitical pressures alone. Even under restrictive international conditions, adaptive and innovation-oriented regulation can sustain digital ecosystem growth, whereas internal instability may hinder development despite external openness. The study provides a quantitative-structural foresight framework to support strategic decision-making in Iran's digital insurance sector.

Keywords: *Digital Insurance; Platform-Based Businesses; Critical Uncertainty; MICMAC; Scenario Planning; Institutional Instability.*

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1. Introduction

Digital transformation has become a defining force reshaping financial services, and insurance has emerged as one of the sectors experiencing the most profound structural reconfiguration under this shift. Contemporary insurance markets are increasingly characterized by data-intensive processes, platform-mediated distribution, algorithmic risk assessment, and digitally enabled customer journeys, which together are redefining traditional value chains and competitive logics. Within this landscape, InsurTech has moved from being a peripheral technological trend to a core strategic paradigm that repositions insurance as an ecosystem-based, service-embedded, and customer-centric

industry. Recent scholarship emphasizes that InsurTech should be understood not merely as the use of new tools, but as a transformation in how insurance products are designed, priced, distributed, and serviced, through the integration of digital technologies across organizational and market interfaces [1-3]. Conceptual clarity has also advanced: defining InsurTech requires acknowledging its dual character as both a set of technological capabilities and an emerging institutional–market configuration that blends fintech infrastructures with insurance-specific regulatory and actuarial constraints [4, 5]. This definitional framing is crucial because it establishes why the study of digital insurance cannot be reduced to "technology adoption" in isolation; rather, it must address the co-evolution of regulation, business models, and socio-technical trust.

A central theme in the contemporary literature is that digital insurance transformation is being driven by converging innovations in artificial intelligence, data science, cloud services, connected devices, and platform architectures. In particular, the diffusion of data science and AI in financial services has made it possible to shift insurance operations from retrospective, document-centric routines to real-time, predictive and automated decision environments [6]. These capabilities enable insurers to automate underwriting and claims triage, personalize offerings, and improve fraud detection through machine-learning pipelines that continuously learn from multi-source data. At the same time, technology-driven transformation introduces new operational vulnerabilities and governance dilemmas, especially around explainability, fairness, cyber risk, and data stewardship. The insurance sector's trajectory therefore reflects a tension between efficiency gains and the necessity of institutional safeguards, a tension highlighted in the broader InsurTech discourse that stresses both the promises and perils of digitalization [7]. This duality is particularly salient for emerging markets where institutional capacity and market infrastructure may lag behind the speed of technological diffusion.

Beyond enabling technologies, a second transformation axis is the reconfiguration of insurance markets around platforms and ecosystem coordination. Platform-based business models shift competitive advantage from product bundling and agency networks toward data orchestration, partner integration, and experience design. Such models allow insurance to be embedded at the point of need, delivered through non-insurance platforms, and scaled through ecosystem partnerships. Contemporary research increasingly recognizes embedded insurance as an ecosystem outcome rather than a standalone product strategy, with customer relationship management, data integration, and partner governance acting as key levers that make embedded insurance feasible at scale [8]. This platform logic is not uniform across countries; rather, it is shaped by regulatory permissibility, digital infrastructure maturity, and trust in digital financial services. In Iran, where fintech ecosystems are evolving under distinctive institutional conditions, the adoption of platform-based InsurTech models has been conceptualized as requiring a coherent framework that aligns actors, governance mechanisms, and strategic capabilities [9]. Such work underscores that the success of digital insurance platforms depends on more than technical readiness; it requires institutional alignment and market coordination.

The strategic significance of InsurTech is also evident in industry-oriented syntheses that highlight how digital entrants and incumbent insurers are reconfiguring competition through customer-centricity, operational automation, and innovation-led differentiation. International perspectives depict InsurTech as a disruptive force that changes not only distribution channels but also the architecture of insurance services in the fintech era, often through modular products, API ecosystems, and data-driven personalization [10]. Industry reports similarly emphasize that the most dynamic developments are occurring where insurers collaborate with startups and technology partners to build open ecosystems, experiment with new distribution logics, and streamline claims and underwriting operations through digital workflows [11]. These perspectives collectively suggest that InsurTech is better conceptualized as an ecosystem transformation pathway rather than an isolated adoption of digital tools.

However, the development of digital insurance is uneven across institutional settings, and this has motivated a growing body of research focused on adoption drivers and organizational readiness. Empirical work on adoption intentions identifies that perceived usefulness, trust, perceived risk, and facilitating conditions can meaningfully shape InsurTech uptake among relevant stakeholders, while also stressing that drivers differ depending on market maturity and institutional environment [12]. On the supply side, organizational-level innovation capacity and technological sophistication can influence an insurer's ability to engage in InsurTech-enabled transformation. For example, evidence from enterprise-level studies indicates that InsurTech capability development is associated with higher technology innovation levels within insurance

companies, suggesting that digital transformation is not only an outcome but also a capability-building process [13]. Such findings align with the view that insurers must build dynamic capabilities—data, digital process redesign, and partnership management—to benefit from InsurTech rather than merely acquiring software solutions.

The literature also stresses that digital insurance transformation must be interpreted through the lens of regulation and actuarial governance. The insurance domain is distinctive because it operates within stringent consumer protection mandates, solvency requirements, and risk governance frameworks, which can constrain innovation even when technology is available. Practical guidance for actuarial and insurance communities highlights that InsurTech initiatives require careful alignment with pricing adequacy, model governance, and ethical risk management, particularly when analytics and automation influence underwriting or claims decisions [14]. Complementary analyses emphasize that digitization can introduce new systemic risks such as data concentration, cyber exposure, and model risk, which necessitate robust governance and regulatory attention [2, 7]. These challenges are not abstract; they directly affect platform-based insurance services that rely on continuous data flows, third-party integrations, and algorithmic decision systems.

The acceleration of digitization during the COVID-19 period further reinforced the strategic necessity of digital channels, but also surfaced implementation constraints. Evidence from pandemic-focused analyses indicates that insurers faced rapid shifts toward remote operations and digital customer service, yet encountered obstacles related to operational resilience, legacy system limitations, and organizational readiness for end-to-end digitization [15]. These lessons remain relevant beyond the pandemic, as they illuminate why platform-based transformation is both urgent and difficult. In this context, markets with infrastructure gaps, institutional volatility, or constrained access to global technology may experience different pathways of InsurTech evolution than those observed in advanced economies.

Country-specific studies also demonstrate that InsurTech's effects are mediated by local market structure and institutional conditions. For instance, research examining the Chinese insurance sector shows that InsurTech can significantly alter industry dynamics by enabling digital distribution, improving process efficiency, and fostering new forms of customer engagement, while simultaneously requiring regulatory adaptation and governance oversight [16]. Such findings reinforce that digital insurance development is context-contingent: technology may provide possibilities, but institutions determine trajectories. This contextual dependency is particularly important when analyzing Iran, where platform-based digital insurance businesses develop under distinctive regulatory, infrastructural, and market constraints.

In Iranian scholarship, recent work has focused on designing adoption and marketing frameworks tailored to the realities of the domestic insurance ecosystem. Structural–interpretive modeling has been used to map the layered relationships among factors influencing InsurTech adoption, emphasizing that technology, policy environment, organizational readiness, and customer trust interact as a system rather than independent variables [17]. Parallel research has proposed marketing models for InsurTech startups, highlighting strategic levers such as value proposition design, customer engagement, ecosystem partnerships, and institutional fit as determinants of successful market entry and scaling [18-20]. These contributions are important because they shift attention from generic adoption narratives to ecosystem-specific mechanisms, including how startups navigate institutional constraints and how incumbents restructure their capabilities to collaborate with technology actors. Local conference-based analyses also document the practical impact of InsurTech on the insurance industry and point to the growing relevance of platform intermediaries and digital channels in reshaping customer interaction patterns [21]. Together, these studies suggest that Iran's digital insurance transformation is emerging, but its trajectory is not predetermined; it depends on how key drivers interact and how uncertainties resolve over time.

Despite this expanding literature, a major gap remains in linking the conceptual and empirical insights on InsurTech to a systematic analysis of interacting drivers in platform-based insurance services, especially under conditions of environmental uncertainty. Much of the existing work either emphasizes micro-level adoption intentions, organizational readiness, or conceptual definitions, without integrating these dimensions into a structural model that clarifies which forces are structurally dominant and which are primarily outcomes of the system. Moreover, platform-based insurance services intensify interdependencies by connecting insurers with fintech infrastructures, digital identity ecosystems, payment rails, and data governance regimes, making linear analysis insufficient. The broader InsurTech field consistently acknowledges that disruption is multi-dimensional and ecosystem-driven, but translating this

into decision-relevant maps of influence and dependence remains underdeveloped, particularly for settings where geopolitical and institutional constraints can magnify uncertainty [5, 22]. As a result, policymakers and industry strategists may lack a structured understanding of which drivers are foundational "levers" and which are "results" that respond to deeper institutional forces.

The need for a structured, system-oriented approach is amplified when the unit of analysis is platform-based insurance service businesses. Platforms are inherently relational: their performance and scalability depend on partner networks, data integration, trust and reputation mechanisms, and regulatory legitimacy. In the InsurTech context, platform dynamics create new competitive boundaries between insurers, intermediaries, and technology providers, while simultaneously generating opportunities for embedded insurance and new forms of customer value creation [8, 10]. Yet platform growth can be constrained by regulatory uncertainty, fragmented infrastructures, or insufficient digital trust—factors that are particularly salient in emerging contexts where financial services innovation must align with governance capacity. Therefore, the core analytical challenge becomes identifying which drivers exert the strongest systemic influence over the platform-based insurance ecosystem and how uncertainty around those drivers shapes future pathways.

In this article, the conceptual premise is that the future of platform-based insurance service businesses is governed by a structured interaction among political–legal, economic–financial, technological, and socio-cultural drivers. The political–legal layer determines the rules of market participation, legitimacy, and access conditions; the economic–financial layer defines investment feasibility and consumer demand constraints; the technological layer provides the operational capacity for scalable digital services; and the socio-cultural layer governs adoption, trust, and sustained engagement. While these layers are frequently referenced in the literature, the practical question is which specific drivers inside these layers are structurally dominant, which ones act as unstable linkage nodes, and which ones represent dependent outcomes that can be monitored as indicators of system performance. Building such a structural map is necessary for strategic planning because it enables decision-makers to prioritize interventions, design adaptive regulation, allocate innovation resources, and develop resilience strategies under uncertainty.

This study aims to identify and structurally analyze the key drivers and their interrelationships shaping the future of platform-based digital insurance service businesses in Iran.

2. Methodology

This study employed an applied, exploratory–explanatory research design grounded in strategic foresight and qualitative structural analysis. The methodological approach followed a sequential qualitative framework aimed at identifying and analyzing the key drivers shaping the future of platform-based insurance service businesses in Iran. The research focused on expert judgment as the primary source of data, consistent with foresight and scenario-planning studies conducted under conditions of high environmental uncertainty. The statistical population consisted of experts actively engaged in the Iranian insurance industry, financial technology ecosystem, digital economy policy-making, and related academic fields. Participants were selected through purposive sampling to ensure high levels of expertise, diversity of perspectives, and relevance to digital insurance transformation. Inclusion criteria required participants to possess at least a master's degree in fields such as insurance management, economics, finance, information technology, public policy, or technology management, alongside substantial professional experience. Experts were also required to have a minimum of ten years of professional activity, direct experience in digital transformation or fintech-related initiatives, managerial or strategic decision-making experience, or documented scholarly or professional contributions related to insurance innovation or digital services. Following methodological recommendations in foresight research emphasizing analytical adequacy rather than statistical representativeness, twenty experts were ultimately selected. The sample included senior managers from insurance companies, fintech entrepreneurs, policymakers from regulatory institutions, venture investment specialists, academic researchers, and digital transformation consultants. The multidisciplinary composition of the expert panel strengthened external validity by integrating technological, economic, regulatory, and social perspectives relevant to the digital insurance ecosystem.

Data collection was conducted through a multi-stage qualitative process integrating systematic literature review, semi-structured expert interviews, and structured expert evaluation procedures. Initially, a systematic review of international and domestic scholarly literature was

undertaken to identify preliminary driving forces affecting digital insurance development. Academic databases including Scopus, Web of Science, and national scientific repositories were searched for publications between 2015 and 2024 using combinations of keywords such as digital insurance, InsurTech, financial technology, future of insurance, scenario planning, and driving forces. Inclusion criteria consisted of peer-reviewed studies addressing digital transformation in financial services, macro-environmental analysis, or foresight methodologies, while non-scientific reports, duplicated records, and studies lacking methodological transparency were excluded. Findings from the literature review informed the design of a semi-structured interview protocol composed of open-ended questions addressing three main domains: macro trends influencing digital insurance, critical uncertainties and potential disruptions, and determinants affecting innovation, investment, and regulation. Interviews were conducted in-depth with each expert, lasting approximately sixty to ninety minutes, and continued until theoretical saturation was achieved, meaning that additional interviews no longer produced new conceptual insights. All interviews were transcribed verbatim and prepared for qualitative analysis. Following driver extraction, a classical Delphi-based evaluation stage was implemented to validate and prioritize identified drivers. Experts assessed the degree of influence and uncertainty associated with each driver using a five-point Likert scale, enabling structured comparison and consensus-building across the expert panel.

Data analysis proceeded through successive qualitative and structural analytical stages. Interview transcripts were analyzed using thematic analysis, beginning with open coding to extract initial concepts, followed by axial coding to group related codes into broader thematic categories, and concluding with selective coding to identify finalized driving forces consistent with both empirical data and theoretical literature. Qualitative data management and coding organization were supported by MAXQDA software to enhance transparency and traceability of analytical decisions. To strengthen qualitative validity, member checking was conducted whereby selected experts reviewed and confirmed the interpreted themes and extracted drivers. After validation, the refined set of drivers entered the structural analysis phase. Experts' evaluations of driver influence were used to construct a cross-impact matrix representing the direct effects of each driver on all other drivers within the system. Structural analysis was performed using the MICMAC method, which calculates driving power and dependence scores based on row and column totals of the matrix. Drivers were subsequently positioned within an influence–dependence map, allowing classification into structural drivers, linkage variables, dependent variables, and autonomous variables. This analytical process enabled identification of variables exerting the greatest systemic influence as well as those most sensitive to environmental change. Finally, drivers exhibiting both high driving power and high uncertainty were selected as critical uncertainties and synthesized into overarching scenario dimensions, forming the analytical foundation for subsequent scenario development and strategic interpretation of the future of digital insurance platforms in Iran.

3. Findings and Results

The qualitative phase of the research resulted in the identification of fifteen key driving forces shaping the future of platform-based insurance service businesses in Iran. Thematic analysis of expert interviews indicated that the evolution of digital insurance platforms emerges from an integrated interaction between institutional governance, macroeconomic conditions, technological transformation, and socio-cultural readiness. Experts emphasized that political–legal drivers define the institutional boundaries of innovation, economic–financial drivers determine sustainability and investment feasibility, technological drivers function as operational enablers of digital transformation, and socio-cultural drivers influence market adoption and behavioral acceptance. The synthesis of interview data revealed four overarching categories of drivers: political–legal, economic–financial, technological, and socio-cultural forces.

Political–legal drivers included international sanctions and foreign relations, political stability and national security, government policymaking in technology and innovation, Central Insurance regulatory frameworks, and data privacy legislation. Economic–financial drivers consisted of exchange rate stability, inflation and purchasing power, venture capital investment, and electronic payment infrastructures. Technological drivers encompassed global fintech developments, access to advanced digital infrastructure, and internet and smartphone penetration. Socio-cultural drivers included digital literacy, public trust in digital financial services, and demographic and lifestyle transformation. These drivers formed the conceptual basis for quantitative expert evaluation and structural analysis.

Table 1. Impact Scores of Driving Forces (Five-Point Likert Scale)

Driver	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17	E18	E19	E20	Mean
International Sanctions	5	5	5	4	5	5	5	4	5	5	5	5	4	5	5	5	4	5	5	5	4.85
Political Stability	5	4	5	5	4	5	5	4	5	4	5	4	5	5	4	5	4	5	5	4	4.65
Government Policy	5	5	5	4	5	5	4	5	5	5	5	5	4	5	5	5	4	5	5	5	4.80
Insurance Regulations	4	5	5	4	5	4	5	4	5	4	4	5	5	4	5	4	5	4	5	4	4.50
Privacy Laws	4	4	5	4	4	5	4	4	5	4	4	4	5	4	5	4	4	5	4	5	4.35
Exchange Rate Stability	5	5	4	5	5	4	5	5	4	5	5	5	4	5	5	4	5	5	4	5	4.75
Inflation & Purchasing Power	5	4	5	5	4	5	5	4	5	5	5	4	5	5	4	5	5	4	5	5	4.70
Venture Capital	4	4	5	4	4	4	5	4	4	5	4	4	5	4	4	5	4	4	5	4	4.30
Electronic Payment Systems	4	4	4	5	4	4	4	4	5	4	4	4	4	5	4	4	4	4	5	4	4.20
Global FinTech Developments	4	5	5	4	5	4	5	4	4	5	4	5	5	4	5	4	5	4	5	5	4.55
Access to Advanced Technology	5	4	5	4	5	4	5	4	5	5	5	4	5	4	5	4	5	4	5	5	4.65
Internet & Mobile Penetration	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	5	4	4.10
Digital Literacy	4	4	4	3	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	3.95
Trust in Digital Services	5	4	4	5	4	5	4	5	4	4	5	4	4	5	4	5	4	5	4	4	4.45
Lifestyle Changes	5	5	5	4	5	5	5	4	5	5	5	5	4	5	5	5	4	5	5	5	4.85

Expert evaluations showed that international sanctions, lifestyle change, government policymaking, exchange rate stability, and political stability achieved the highest impact scores. The results demonstrate that macro institutional and economic variables exert stronger structural influence than purely technological or social factors.

Table 2. Uncertainty Scores of Driving Forces (Five-Point Likert Scale)

Driver	Mean Uncertainty
International Sanctions	4.85
Political Stability	4.60
Government Policy	4.75
Insurance Regulations	4.20
Privacy Laws	4.35
Exchange Rate Stability	4.50
Inflation & Purchasing Power	4.50
Venture Capital	4.35
Electronic Payment Systems	3.70
Global FinTech Developments	4.65
Access to Advanced Technology	4.50
Internet & Mobile Penetration	3.25
Digital Literacy	4.85
Trust in Digital Services	4.60
Lifestyle Changes	4.50

Uncertainty analysis indicated that international sanctions, digital literacy conditions, government policymaking, global fintech evolution, and political stability possessed the highest unpredictability. Drivers such as internet penetration and payment infrastructure were comparatively stable, functioning as long-term trends rather than uncertain variables.

Table 3. Combined Impact–Uncertainty Scores

Driver	Impact	Uncertainty	I × U
International Sanctions	4.9	4.8	23.52
Political Stability	4.7	4.6	21.62
Government Policy	4.8	4.7	22.56
Insurance Regulations	4.6	4.2	19.32
Privacy Laws	4.4	4.3	18.92
Exchange Rate Stability	4.8	4.5	21.60
Inflation & Purchasing Power	4.7	4.5	21.15
Venture Capital	4.3	4.4	18.92
Electronic Payment Systems	4.2	3.6	15.12
Global FinTech Developments	4.5	4.6	20.70
Access to Advanced Technology	4.6	4.4	20.24
Internet & Mobile Penetration	4.1	3.2	13.12
Digital Literacy	4.0	3.5	14.00
Trust in Digital Services	4.5	4.1	18.45
Lifestyle Changes	4.2	3.8	15.96

The combined scores confirmed that structurally dominant drivers were simultaneously characterized by high uncertainty, justifying their selection for structural cross-impact analysis.

Table 4. Standard MICMAC Scale

Value	Meaning
0	No influence
1	Weak influence
2	Moderate influence
3	Strong influence
P	Potential influence

Table 5. MICMAC Cross-Impact Matrix (Influence–Dependence)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total Influence
1	0	3	3	2	2	3	3	2	1	3	2	1	1	2	2	30
2	3	0	3	2	2	3	3	2	1	2	2	1	1	2	2	29
3	3	3	0	3	3	2	2	2	2	2	2	1	1	2	1	29
4	1	1	3	0	3	1	1	1	2	1	1	1	1	1	1	19
5	1	1	2	3	0	1	1	1	2	1	1	1	1	2	1	19
6	3	3	2	1	1	0	3	3	1	2	2	1	1	2	2	27
7	3	3	2	1	1	3	0	2	1	1	1	1	2	2	3	26
8	1	1	2	1	1	2	2	0	2	2	2	1	1	1	1	20
9	0	0	1	1	1	1	1	2	0	2	2	3	3	3	2	22
10	2	2	2	1	1	2	1	3	2	0	3	2	2	2	2	27
11	2	2	2	1	1	2	1	2	3	3	0	3	3	3	2	30
12	0	0	1	1	1	1	1	2	3	2	3	0	3	3	2	23
13	0	0	1	1	1	1	2	2	3	2	3	3	0	3	3	25
14	1	1	2	1	2	2	2	2	3	2	2	2	3	0	3	28
15	1	1	1	1	1	2	3	2								

The MICMAC matrix revealed strong systemic interdependence among institutional, economic, and technological variables, confirming the nonlinear nature of the digital insurance ecosystem.

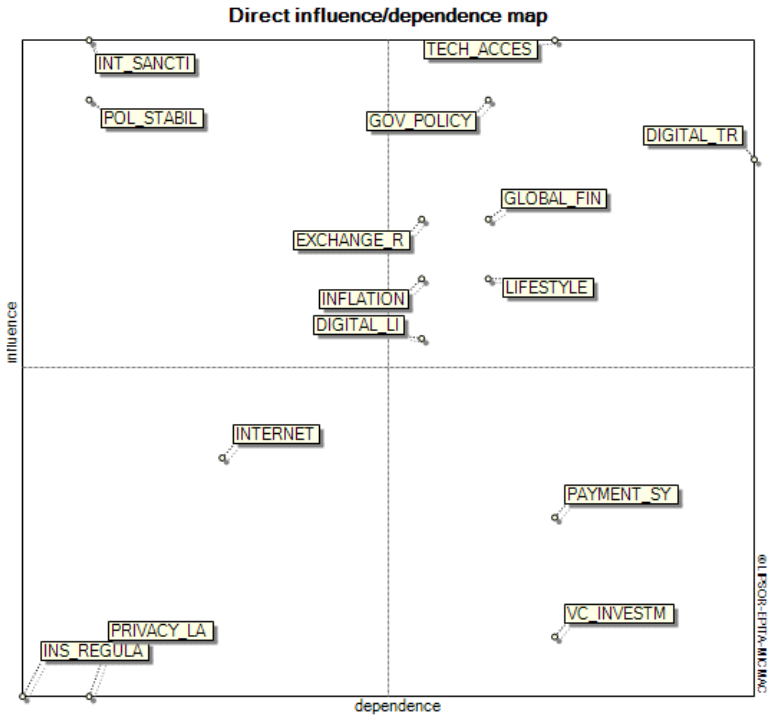

Figure 1. Direct Influence–Dependence Map

The direct influence map positioned international sanctions and political stability within the high-influence zone, highlighting their structural dominance.

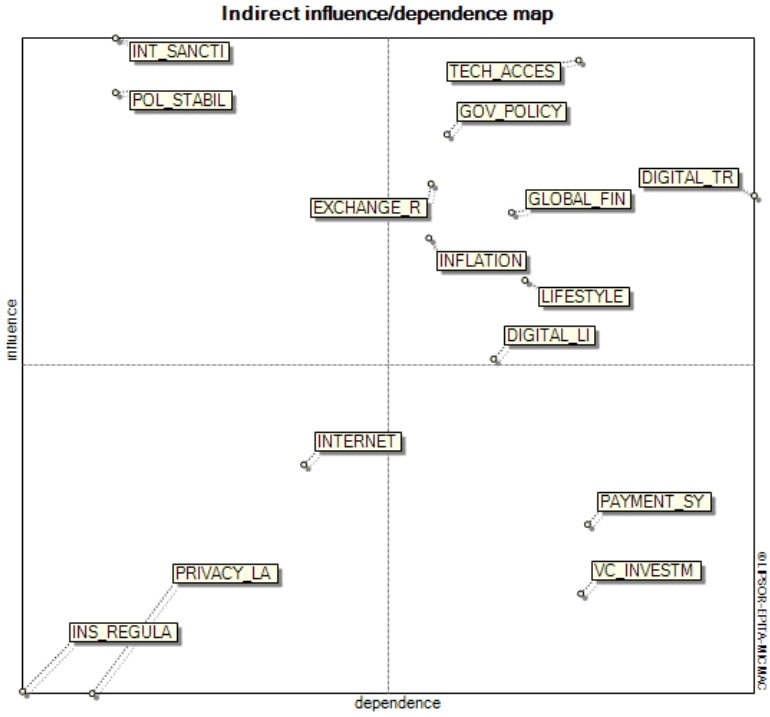

Figure 2. Indirect Influence–Dependence Map

The indirect map demonstrated amplified systemic sensitivity after iterative interaction effects were considered.

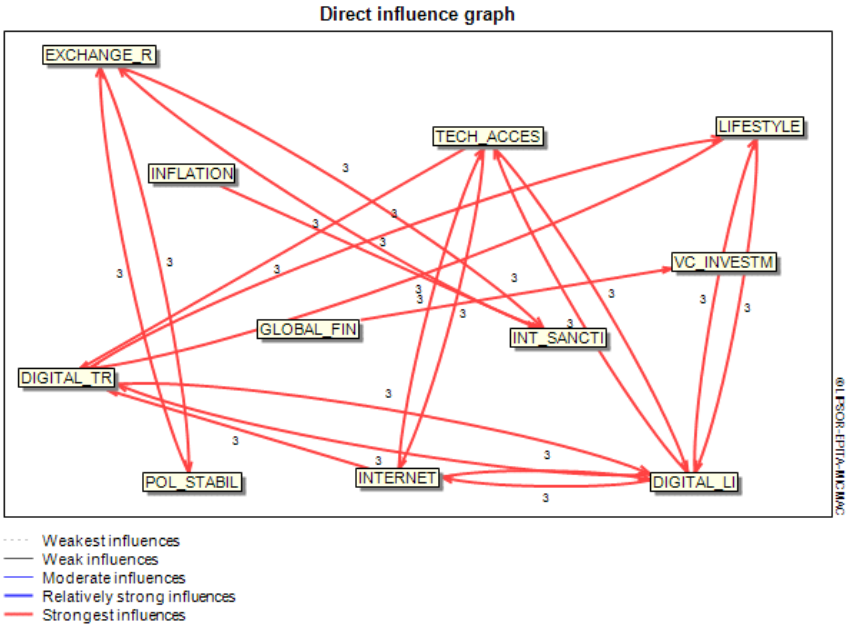

Figure 3. Direct Influence Diagram

This diagram illustrated immediate causal relationships among drivers, emphasizing institutional variables as dominant sources of influence.

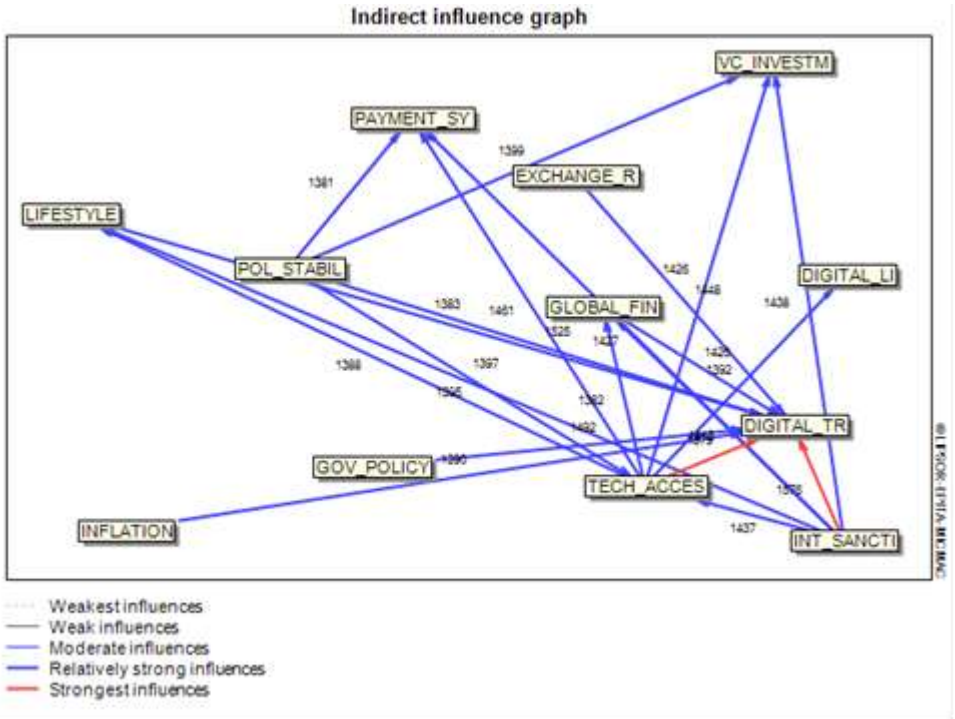

Figure 4. Indirect Influence Diagram

The indirect influence diagram revealed deeper feedback loops linking technological access, policymaking, and market outcomes.

Table 6. MICMAC Structural Classification Results

Driver	Influence	Dependence	Classification
International Sanctions	30	21	Driver
Political Stability	29	21	Driver
Government Policy	29	27	Linkage
Insurance Regulations	19	20	Autonomous
Privacy Laws	19	21	Autonomous
Exchange Rate Stability	27	26	Linkage
Inflation & Purchasing Power	26	26	Dependent
Venture Capital	20	28	Dependent
Electronic Payment Systems	22	28	Dependent
Global FinTech Developments	27	27	Linkage
Access to Advanced Technology	30	28	Linkage
Internet & Mobile Penetration	23	23	Autonomous
Digital Literacy	25	26	Dependent
Trust in Digital Services	28	31	Dependent
Lifestyle Changes	26	27	Dependent

Classification based on the influence–dependence map demonstrated that international sanctions and political stability function as structural Drivers shaping the entire system. Government policymaking, exchange rate stability, global fintech developments, and technological accessibility were identified as Linkage variables, meaning they both influence and are influenced by the system and therefore represent critical instability points. Dependent variables, including trust, venture investment, purchasing power, digital literacy, payment infrastructure, and lifestyle change, reflect system outcomes rather than structural origins. Autonomous variables exhibited limited systemic interaction.

Overall, findings indicate that the future of platform-based digital insurance businesses in Iran is primarily governed by macro institutional and economic forces, while technological and socio-cultural factors operate as adaptive components responding to structural conditions.

4. Discussion and Conclusion

The present study sought to identify and structurally analyze the key drivers shaping the future of platform-based insurance service businesses through a foresight-oriented approach integrating expert judgment and MICMAC structural analysis. The findings demonstrated that platform-based InsurTech development does not evolve primarily through technological change alone; rather, it emerges from the interaction between institutional, economic, technological, and socio-cultural forces operating simultaneously within a complex adaptive system. The structural results revealed that international sanctions and political stability functioned as core driving variables with high influence and low dependence, while government policymaking, exchange rate stability, global fintech developments, and access to advanced technologies occupied linkage positions characterized by both high influence and high sensitivity. Dependent variables such as digital trust, venture capital investment, purchasing power, digital literacy, and lifestyle change were found to represent outcomes of broader systemic conditions rather than independent determinants of transformation.

The dominance of institutional and macro-environmental drivers identified in this study aligns strongly with contemporary InsurTech scholarship emphasizing that digital insurance transformation is embedded within regulatory and governance ecosystems. InsurTech is increasingly conceptualized as a systemic restructuring of the insurance value chain rather than a purely technological innovation process [2, 3]. The finding that political stability and external institutional conditions exert the greatest structural influence supports the argument that technological capability alone cannot guarantee successful digital transformation. Research on InsurTech disruption similarly stresses that innovation trajectories depend heavily on institutional readiness, regulatory clarity, and policy alignment, which collectively shape market entry conditions and ecosystem collaboration [10]. In this sense, the results

confirm that platform-based insurance models require enabling institutional environments before technological advantages can materialize.

The classification of government policymaking as a linkage variable provides particularly important insight. Linkage variables simultaneously influence and are influenced by other system components, meaning that small policy shifts can generate disproportionate systemic effects. Previous studies examining InsurTech adoption have highlighted policymaking and regulatory frameworks as decisive mediators between technological innovation and market implementation [12]. Similarly, conceptual analyses of digital insurance emphasize that adaptive regulation must evolve alongside technological change to avoid either innovation stagnation or systemic risk escalation [1]. The current findings extend these perspectives by empirically demonstrating policymaking's structural centrality within a platform-based insurance ecosystem. Policy is not simply a contextual factor but a dynamic mechanism through which economic, technological, and social forces interact.

Economic drivers, particularly exchange rate stability and inflation dynamics, also emerged as structurally significant linkage variables. This finding underscores the sensitivity of digital insurance platforms to macroeconomic stability. Platform models require continuous investment in technology infrastructure, cybersecurity, and customer acquisition; therefore, economic volatility directly affects operational scalability. Empirical research has shown that InsurTech innovation correlates strongly with technological investment capacity and innovation performance within insurance firms [13]. In unstable economic environments, insurers may delay digital transformation initiatives or prioritize short-term risk management over long-term innovation. The results therefore reinforce the broader literature suggesting that digital transformation should be interpreted as an economic as well as technological phenomenon [16].

Another important contribution of the findings concerns technological drivers. Global fintech developments and access to advanced technologies were classified as linkage variables rather than primary drivers. This result suggests that technology functions as an accelerator rather than an originator of transformation. The literature repeatedly emphasizes that technologies such as artificial intelligence, blockchain, and data analytics enable new insurance models but do not independently determine adoption outcomes [6, 23]. The structural positioning observed in this study empirically confirms that technological progress gains influence only when supported by favorable institutional and economic conditions. Moreover, industry analyses indicate that insurers increasingly rely on ecosystem collaboration and platform integration rather than isolated technological deployment, reinforcing the systemic nature of InsurTech transformation [11].

The identification of socio-cultural factors as dependent variables provides further theoretical insight. Digital trust, literacy, and lifestyle change were found to be outcomes shaped by upstream drivers rather than independent structural forces. This finding is consistent with studies arguing that customer adoption of digital insurance is largely mediated by institutional legitimacy, platform reliability, and regulatory protection mechanisms [8]. Earlier InsurTech research also highlights that trust develops gradually through consistent service quality, transparent governance, and secure data practices rather than through technological exposure alone [5]. Therefore, socio-cultural acceptance appears to follow structural transformation rather than initiate it, supporting ecosystem-based models of innovation diffusion.

The distinction between driver, linkage, dependent, and autonomous variables contributes to resolving a long-standing ambiguity within InsurTech research regarding causal priority among transformation factors. Previous Iranian studies have proposed adoption models emphasizing marketing strategy, organizational readiness, and stakeholder alignment [18-20]. The present findings complement those models by demonstrating how these factors are structurally positioned within a broader system. Marketing effectiveness, customer engagement, and venture investment, while important, operate as dependent results emerging from institutional stability and policy direction. This systemic interpretation strengthens earlier structural–interpretive modeling research conducted in the Iranian context, which highlighted interdependencies among technological, organizational, and environmental variables [17].

The results also resonate with global analyses describing InsurTech as an ecosystem transition involving incumbents, startups, regulators, and digital platforms. Foundational works portray InsurTech as a collaborative environment where innovation emerges through interaction among heterogeneous actors rather than unilateral technological disruption [22]. The current study extends this view by showing that ecosystem dynamics are governed by hierarchical structural relationships. Institutional drivers establish system boundaries, linkage variables transmit

change across domains, and dependent variables reflect ecosystem performance. Such structural differentiation advances theoretical understanding by integrating foresight methodology with InsurTech ecosystem theory.

Furthermore, the prominence of institutional drivers supports arguments that emerging markets follow distinct digital transformation pathways compared with advanced economies. Digitization challenges experienced during periods of crisis, including operational disruptions and accelerated digital adoption pressures, illustrate how contextual constraints shape technological implementation trajectories [15]. The Iranian platform-based insurance ecosystem appears to exhibit similar dynamics, where digital innovation progresses under conditions of uncertainty and institutional adaptation rather than stable technological diffusion. This observation reinforces the claim that InsurTech development should be analyzed through context-sensitive frameworks rather than universal models.

Collectively, the discussion demonstrates that the future of platform-based insurance businesses depends less on technological availability than on systemic alignment across governance, economic stability, and ecosystem collaboration. The structural analysis clarifies that institutional stability acts as the foundational driver, policymaking and technology function as adaptive transmission mechanisms, and social acceptance emerges as a downstream outcome. These insights contribute to bridging theoretical discussions of InsurTech disruption with practical strategic foresight, offering a more holistic explanation of digital insurance transformation.

Several limitations should be acknowledged when interpreting the findings. First, the study relied on expert judgment, which, although appropriate for foresight research, may reflect subjective perceptions shaped by professional experience and contextual assumptions. Second, the analysis focused on a national ecosystem, meaning that results may not be fully generalizable to other institutional environments with different regulatory structures or market maturity levels. Third, the qualitative nature of driver identification limits causal verification through statistical testing, and structural relationships identified through MICMAC analysis represent perceived influence rather than empirically measured causal effects. Finally, rapid technological evolution in the InsurTech domain means that emerging innovations could alter driver relationships over time, requiring periodic reassessment.

Future research could expand the analytical framework by integrating quantitative modeling approaches such as structural equation modeling or system dynamics simulations to validate and refine the relationships identified in this study. Comparative cross-country analyses would also help determine how institutional configurations influence platform-based insurance transformation across different economic contexts. Longitudinal studies examining the evolution of drivers over time could provide deeper insight into dynamic feedback mechanisms within digital insurance ecosystems. Additionally, future research may explore consumer-level behavioral data and organizational performance indicators to complement expert-based foresight methods, thereby linking structural drivers with measurable innovation outcomes.

From a practical perspective, policymakers should prioritize regulatory stability and adaptive governance mechanisms that encourage innovation while maintaining risk oversight. Insurance companies and InsurTech startups should focus on ecosystem collaboration strategies, including partnerships with fintech firms, digital platforms, and technology providers, rather than pursuing isolated digital initiatives. Investment in advanced technological infrastructure should be aligned with institutional readiness and organizational capability development to maximize transformation outcomes. Industry leaders should also recognize that building digital trust and customer adoption requires sustained institutional credibility, transparent data governance, and consistent service reliability, emphasizing that successful digital insurance transformation is fundamentally a systemic rather than purely technological endeavor.

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

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Ethical Considerations

All procedures performed in this study were under the ethical standards.

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