Volume XXII, Issue (1) (2026) 522-534

International May Conference on Strategic Management

DOI: 10.5937/IMCSM26522B *Research Article*

TECHNOLOGY AND DIGITAL TRANSFORMATION IN INSURANCE: A COMPARATION ANALYSIS WITH EVIDENCE FROM KOSOVO

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Abstract: The insurance industry is being significantly transformed by technological innovation. This transformation begins with the reshaping of core operations such as underwriting, pricing, claims management, and distribution channels. This paper analyzes how digital technologies, including artificial intelligence, data analytics, Risk Management Information Systems (RMIS), and Insurtech solutions, are influencing modern insurance operations. The study is based on a qualitative literature review oriented by theory, supported by the theoretical framework of Rejda and McNamara and complemented by recent academic and industry sources. The paper includes a descriptive and exploratory econometric analysis of licensed insurance companies in Kosovo, with the aim of assessing the level of adoption of digital services in the local insurance market. The findings show that while global insurance markets are increasingly adopting advanced technologies such as artificial intelligence and predictive analytics, the insurance sector in Kosovo remains at an early stage of digital transformation, focusing mainly on customer-oriented digital services. The econometric results indicate that mobile applications and online claims functionalities are the main drivers of digitalization among insurance companies in Kosovo.

Keywords: Insurtech; risk management; insurance operations; artificial intelligence; claims

1. INTRODUCTION

In the economy of a state, insurance plays a central role in the development of the modern economy. The role of insurance in supporting economic stability and growth has been

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widely documented, particularly in developing and transition economies, where the expansion of insurance markets contributes to financial system development and economic resilience (Topuzoska et al., 2018, 2022). Insurance enables households, businesses, and societies to manage the financial consequences of uncertain events (Nasirov et al., 2025). Uncertain events, or unexpected risk, are related to the occurrence of a loss and to the notion of loss exposure as any situation in which a loss is possible (Harrington & Niehaus, 2004). Effective risk management seeks to identify, measure, and treat these exposures by using techniques such as risk control, risk financing, and, above all, risk transfer through insurance (Hopkin, 2018). In a classical view, insurance is defined as the pooling of fortuitous losses through the transfer of risk to an insurer that promises compensation or related services (Rejda & McNamara, 2014). The social benefits of insurance are numerous, such as greater financial stability and efficient allocation of resources, as well as its social costs, including administrative expenses and the potential for fraud (Outreville, 2018). Within this framework, risk management is presented as a structured process: setting objectives, identifying and analyzing loss exposures, selecting appropriate techniques, implementing them, and continuously monitoring the results (Rejda & McNamara, 2014). Government regulation of insurance aims to ensure solvency, protect consumers, maintain fair rates, and prevent unfair practices, for example in the use of credit-based insurance scores (Cummins & Weiss, 2014). At the same time, fundamental legal principles such as indemnity, insurable interest, subrogation, and utmost good faith shape the design and interpretation of insurance contracts (Marano & Siri, 2017). The analysis of policy structure, exclusions, deductibles, coinsurance, and other insurance provisions clarifies the rights and responsibilities of both the insurer and the insured (Rejda & McNamara, 2014). These legal and regulatory constraints are directly relevant when insurers adopt new technologies that rely on extensive data collection and algorithmic decision-making (Abisheva et al., 2025).

In this context, the insurance industry is experiencing a rapid digital transformation. Risk management information systems (RMIS), sophisticated catastrophe models, insurtech platforms, and artificial intelligence are increasingly integrated into underwriting, pricing, claims management, and customer engagement processes (Wu & Thoo, 2025; Allam-Firley et al., 2025). Recent empirical evidence confirms that deeper integration of InsurTech solutions, particularly artificial intelligence, blockchain, and IoT, is associated with significant improvements in operational efficiency, customer satisfaction, and the accuracy of risk assessment (Anaya & Perez, 2025). Data analysis and modelling improve loss forecasting, refine risk selection, and enable more granular pricing. Digital distribution channels and online platforms challenge traditional agent-based models and open new ways to interact with policyholders (Ashta, 2025). At the same time, the increasing use of big data, telematics, and credit-based scoring raises important ethical, legal, and regulatory questions related to privacy, fairness, transparency, and discrimination (Nasirov et al., 2025; Carpenter et al., 2025; Narayanan, 2025). The purpose of this paper is to connect the traditional foundations of risk management and insurance with these contemporary developments in technology and innovation. Based mainly on the book by Rejda and McNamara, complemented by recent literature on insurtech and digitalization, the paper examines how technology is transforming the core operations of insurance underwriting, pricing, claims management, and distribution and what implications this has for risk management, regulation, and consumer protection. The remainder of the paper is structured as follows: the next section reviews the classical framework of insurance operations and financial management; the following section analyses the main technological innovations and their impact on underwriting, claims, and pricing; the subsequent section discusses digital distribution and customer engagement, including the role of RMIS and online platforms; while the final section addresses ethical and regulatory challenges and presents conclusions for insurers, regulators, and policyholders (Narayanan, 2025).

With a particular focus, this paper also addresses the technological developments of insurance companies in Kosovo. Based on the study of the profiles of these insurance companies on their websites and online applications, a simple descriptive analysis has been conducted to observe the stage of technological development reached by insurance companies in Kosovo.

2. LITERATURE REVIEW

Technology has transformed life and the development of the economy in general, and it has also affected the insurance sector (Bohnert et al., 2019). The transformation that the insurance industry has experienced over the past decade, driven by advances in data analytics, artificial intelligence (AI), digital platforms, and interconnected technologies, has created its impact on society (Stoeckli et al., 2018). In addition, prior studies from developing economies emphasize that the evolution of insurance markets is closely linked to broader financial sector development, productivity, and service quality improvements (Joldeska et al., 2024; Meceski et al., 2024). While the fundamental principles of risk pooling and loss distribution remain unchanged, the operational mechanisms through which insurers assess, price, manage, and distribute risk have evolved considerably (Skipper & Kwon, 2017). The literature identifies five key areas of this transformation: underwriting and risk selection; pricing and loss forecasting; claims management and fraud detection; digital distribution; and the ethical and regulatory implications of data-intensive models.

2.1. Technology in Underwriting and Risk Selection

For decision-making in insurance, the main function is represented by underwriting, which determines the acceptance of risk as well as the contractual conditions. Underwriting represents the core decision-making function in insurance, determining risk acceptance and contractual conditions. Traditionally, underwriting relied on rule-based systems and limited historical datasets (Allam-Firley et al., 2025). However, technological developments such as Risk Management Information Systems (RMIS) and integrated data warehouses have enabled insurers to collect and process large volumes of structured and unstructured data (Wu & Thoo, 2025). Predictive capacities, on the other hand, have increased even more through machine learning techniques. Instead of relying only on traditional rating variables, AI-driven underwriting incorporates complex interactions across different datasets (Soleymanpoor et al., 2025). Empirical evidence suggests that deeper integration of artificial intelligence is positively associated with increased operational efficiency and improved risk assessment accuracy (Anaya & Perez, 2025). Telematics devices and IoT technologies allow individualized behavioral risk profiling, particularly in motor and property insurance. Catastrophe modeling also plays a central role in property underwriting. By integrating simulations of natural hazards, exposure mapping, and vulnerability functions, catastrophe models enable insurers to estimate probable maximum losses and manage portfolio accumulation risks (Carpenter et al., 2025). Despite the efficiency gains, the literature highlights three major risks: model misspecification and instability; data bias and indirect discrimination; and reduced transparency in automated decision systems (Sharma, Miller, & Tan, 2025). The increasing reliance on algorithmic decision-making increases the importance of model governance and regulatory oversight.

2.2. Technology in Pricing and Loss Forecasting

Over time, the pricing function of insurance policies has changed significantly (Werner & Modlin, 2016). In practice, pricing was determined according to general risk classes. In contrast to today, where prices are increasingly determined using detailed predictive models (Frees et al., 2014; Joldeska & Mecheski, 2018). Classical actuarial methods, which were mainly based on historical averages (Klugman et al., 2012; Werner & Modlin, 2016), are being complemented or replaced by machine learning algorithms, which are able to analyze very large amounts of data. A good example of this change is usage-based insurance (Usage-Based Insurance – UBI) (Werner & Modlin, 2016). In this model, telematics data are used to analyze how the vehicle is used. This enables pricing models such as pay-as-you-drive (PAYD) and pay-how-you-drive (PHYD), where the insurance premium is directly linked to the real driving behavior of the vehicle. The use of big data also helps to improve loss forecasting and to reduce cross-subsidization between different groups of insured individuals. Pricing of insurance in portfolios exposed to natural risks uses catastrophe models to improve insurance pricing (Carpenter et al., 2025). These models help insurers better understand potential losses from major events such as earthquakes, floods, or storms. New methods, such as "dark speculation," attempt to expand traditional modeling by including possible scenarios for new risks, for example risks related to artificial intelligence or other systemic risks (Carpenter et al., 2025). However, the literature also highlights several important problems, such as model overfitting, model instability, the possibility of indirect discrimination due to the use of socio-economic indicators, and the lack of transparency in very complex algorithms. A particularly controversial issue is the use of credit-based insurance scoring, since this method may create unfair effects in the distribution of insurance costs (Sharma et al., 2025). For this reason, regulatory authorities increasingly require that pricing models be explainable and verifiable.

2.3. Technology in Pricing and Loss Forecasting

The process of digital transformation has moved from manual processes and paper-based documentation toward digital and automated systems (Bohnert et al., 2019). Systems such as Digital First Notice of Loss (FNOL), mobile platforms for reporting claims, and image recognition technologies based on artificial intelligence have significantly contributed to reducing the time needed for claims processing (Soleymanpoor et al., 2025). Machine learning has enabled the automatic classification of claims requests and the direct processing of those that are simpler (Eling & Lehmann, 2018). This means that some claims can be handled automatically without the need for immediate human intervention. At the same time, data analysis has increasingly become an important tool for identifying fraud (Ngai et al., 2011). Methods such as anomaly detection and network analysis help identify suspicious patterns that may indicate fraud (Sharma et al., 2025). Empirical studies in the cyber liability insurance market show that digital risks have created new categories of claims, such as ransomware attacks and losses from phishing, which require specialized expertise in digital investigation and incident response (Meena et al., 2025). However, automated claims handling brings its own benefits but also several important concerns. These include the lack of transparency in decision-making, difficulties in appeal mechanisms, the protection of data privacy, and the possibility of algorithmic bias. For this reason, the literature consistently emphasizes that automated claims decisions should also be supervised by human oversight to guarantee fairness and transparency in the process (Allam-Firley et al., 2025).

2.4. Technology in Pricing and Loss Forecasting

Similar to technological transformations, distribution channels in insurance have also changed over time (Eling & Lehmann, 2018). In the past, the sale of insurance policies was mainly carried out through agents (Skipper & Kwon, 2017). Today, insurance distribution takes place through a broader system that includes multiple channels and digital and online platforms (Stoeckli et al., 2018). Online platforms, insurance comparison websites, mobile applications, and chatbots are increasingly used for purchasing policies and providing services to customers, making the process easier, simpler, and more convenient for clients (Wu & Thoo, 2025; Narayanan, 2025). In emerging markets, digitalization has helped more people gain access to insurance in a shorter period of time. However, the use of more advanced technologies such as artificial intelligence is still not the same across all markets (Nasirov et al., 2025). Studies show that insurance companies with a higher level of digitalization usually have better operational efficiency and more satisfied customers. However, to achieve this, companies need to address several challenges such as legacy IT systems and risks related to cybersecurity (Narayanan, 2025). Digital transformation has not eliminated intermediaries such as agents or brokers. On the contrary, their role is changing. They are focusing more on advising clients and building long-term relationships with them (Allam-Firley et al., 2025). For this reason, the concept of an omnichannel strategy has become very important in modern insurance distribution. This means that customers can use several channels simultaneously (online platforms, applications, agents, or physical offices) to obtain information, purchase insurance, or receive services.

2.5. Technology in Pricing and Loss Forecasting

Technological innovation clearly increases efficiency and accuracy in risk prediction, but every medal has two sides (Eling & Lehmann, 2018). At the same time, it also brings important ethical and regulatory challenges. The literature identifies several key issues such as fairness, transparency, model explainability, privacy, and cybersecurity (Soleymanpoor et al., 2025; Abisheva et al., 2025). To reduce the problems related to the lack of transparency in algorithms, models of Explainable Artificial Intelligence (XAI) have been proposed (Adadi & Berrada, 2018). These models use interpretation tools such as SHAP and LIME, which help explain the decisions of algorithms and can be integrated into regulatory reporting systems (Sharma et al., 2025). However, the use of artificial intelligence in insurance also faces several limitations. Legacy information technology systems, high investment costs, and organizational resistance to change make the adoption of these technologies more difficult (Allam-Firley et al., 2025). Comparative legal analyses show that many insurance regulatory frameworks are still not fully adapted to the digital environment (Abisheva et al., 2025). Companies should establish guidelines for the ethical use of open Chat GPT (Spasic et al., 2024). For this reason, some supervisory authorities have started to use new mechanisms such as regulatory sandboxes and innovation hubs, which aim to balance technological innovation with consumer protection.

Furthermore, studies warn about a phenomenon called the “inclusion paradox,” where digital innovation may increase access to insurance but at the same time may create inequalities due to algorithmic bias or non-transparent risk assessment (Ashta, 2025).Overall, the literature reaches a common conclusion: technological transformation in insurance increases efficiency and accuracy in risk assessment, but it requires strong governance and regulatory structures to ensure fairness, transparency, and public trust.

3. DATA AND METHODOLOGY

This paper is based on a qualitative analysis of how the process of digitalization of insurance companies has changed, how different countries have embraced this transition, what measures have been taken to operate more effectively with the new systems, and whether these new digital systems are the same in all countries. The literature review is theory-oriented and focuses on how technology and innovation are transforming modern insurance operations. The main methodological approach is a structured literature review combined with a conceptual analysis of the main technological developments in underwriting, pricing, claims management, and the distribution of insurance products. The studies were searched in databases such as Scopus and WoS. In addition, an analysis of the online websites of insurance companies in Kosovo was conducted, examining how these companies have embraced the digital system and how they compare with developing countries. The main theoretical basis of the paper relies on the book *Principles of Risk Management and Insurance* by Rejda and McNamara (12th edition). Based on this theoretical foundation, the paper also integrates findings from academic articles, industry reports, and professional publications that address recent developments in the field of insurtech, Risk Management Information Systems (RMIS), catastrophe modeling, artificial intelligence (AI), data analytics, and digital distribution channels in insurance (Wu & Thoo, 2025).

The analysis is developed in four main steps. First, the traditional framework of insurance operations is summarized, focusing on the processes of underwriting, ratemaking, claims handling, and the distribution of insurance products, as well as the legal and regulatory environment in which insurance companies operate. Second, the main technological innovations related to these operations are identified and categorized, such as RMIS systems, catastrophe models, AI-based underwriting tools, telematics, online platforms, and mobile applications. Third, the impact of these technologies is evaluated in four main dimensions: efficiency and cost reduction; the accuracy and quality of risk selection and loss forecasting; customer experience and engagement; and ethical, legal, and regulatory implications. Fourth, insurance companies in Kosovo are analyzed in order to examine their position in relation to the development of digitalization in the insurance industry. The study is primarily based on descriptive analysis; however, a simple exploratory econometric approach is also applied to examine the relationships between digital service indicators. Examples from different lines of business and from different markets are used illustratively based on secondary sources, while the descriptive analysis of insurance companies in Kosovo is based on primary sources taken directly from their official websites. The aim of this methodology is not to provide a full empirical measurement, but to present a structured and critical analysis of how technology is reshaping insurance operations and what challenges and opportunities this creates for insurance companies, policyholders, and regulators. As mentioned above, a desk-based analysis of licensed insurance companies in Kosovo was also conducted. The purpose of this analysis was to assess the level of use of digital services in the local insurance market. For this purpose, publicly available information from the official websites of insurance companies and other industry sources was reviewed. In this analysis, it was examined whether companies offer several key digital services. These services include:the possibility of obtaining an insurance quote online, the online purchase of an insurance policy, the online submission of claims, the use of mobile applications, as well as whether companies mention the use of artificial intelligence in their services. This analysis provides a descriptive overview of the current level of digital transformation in the insurance sector in Kosovo. Furthermore, this analysis allows a comparison between the theoretical technological developments discussed in the literature and their practical implementation in a small emerging insurance market, such as the market of

Kosovo. This methodological approach allows the paper to combine theoretical insights from the literature with a descriptive assessment of the level of digitalization in the Kosovo insurance market.

3.1. Quantitative Analysis

To complement the descriptive analysis, a simple econometric approach was employed in order to explore the relationship between different dimensions of digital service adoption among insurance companies in Kosovo. Given the small sample size, the analysis is exploratory in nature.

First, a composite indicator of digitalization was constructed (Digitalization Index – DI), defined as the sum of four binary variables: online quotation, online purchase, online claims submission, and mobile application availability.

A simple linear regression model was applied:

1. **Linear regression model**, where the Digitalization Index (DI) is used as the dependent variable:

$$DI_i = \beta_0 + \beta_1 App_i + \beta_2 Claims_i + \beta_3 Purchase_i + \varepsilon_i \quad (1)$$

All variables are coded as binary indicators (1 = Yes, 0 = No). The results are interpreted with caution due to the limited sample size. Due to the small sample size, the econometric analysis is limited to a simple linear regression model and the results should be interpreted as indicative rather than conclusive.

4. DIGITAL TRANSFORMATION IN THE KOSOVO INSURANCE MARKET: EVIDENCE FROM COMPANY DIGITAL SERVICES

In Kosovo, there are currently 15 licensed insurance companies operating, of which 13 are currently active and 2 are in the process of liquidation. The Central Bank of the Republic of Kosovo supervises this sector and is also responsible for prudential regulation and consumer protection. Since Kosovo has a small and developing insurance market, compared to developed European markets, it is characterized by a moderate diversification of products and a gradual adoption of digital technologies. To evaluate the level of digital transformation and its development, an analysis based on secondary sources has been conducted by reviewing publicly available information on the official websites of insurance companies. The analysis focused on five observable indicators of digital service adoption: online insurance quotation systems, the possibility of purchasing policies online, online claims submission, the existence of mobile applications, and references to the use of tools based on artificial intelligence. An empirical overview is provided below, with the aim of supporting a theoretical discussion of digital transformation based on technological developments in insurance companies. The data on insurance companies have been collected from the official websites of the insurance companies. Within this framework, five observable indicators of digital transformation were analyzed: online quotation systems, online purchase of insurance policies, online claims submission, the availability of mobile applications, and references to the use of artificial intelligence tools. These indicators represent visible manifestations of digital service adoption and provide a general overview of the current stage of digital maturity in the insurance market in Kosovo.

Table 1. Digital service availability among insurance companies in Kosovo

COMPANY	**Online Quote**	**Onine Purchase**	**Online Claims**	**Mobile App**	**AI Mentioned**
"Elsig" SH.A	Yes	No	Yes	No	No
"Dukagjini" SH.A	Yes	Yes	Yes	No	No
"Prisig" SH.A	Yes	Yes	No	Yes	No
"Scardian" SH.A	Yes	Yes	No	No	No
"Sigal Life Uniqa Group Austria" SH.A	Yes	Yes	Yes	Yes	No
"Sigal Uniqa Group Austria" SH.A	Yes	Yes	Yes	Yes	No
"Eurosig" SH.A	Yes	Yes	Yes	Yes	No
"Siguria" SH.A	Yes	Yes	No	No	No
"Sigma Vienna Insurance Group"	Yes	Yes	Yes	Yes	No
"Sigkos" SH.A	No	Yes	Yes	No	No
"Illyria" SH.A	Yes	Yes	Yes	No	No
"Illyria-Life" SH.A	Yes	Yes	Yes	No	No
"Insig" (In luiqidation)	N/A-	N/A-	N/A-	N/A-	N/A-
"Kosova e Re" SH.A (In luiqidation)	N/A-	N/A-	N/A-	N/A-	N/A-

Source: Author's compilation based on official company websites (2025).

Table 1 clearly presents a descriptive overview of the initial level of digital services among insurance companies in Kosovo. Out of 13 active insurers, 11 offer online quotation systems and 12 enable online policy purchase, which indicates that most companies have adopted basic digital sales channels. Eight companies allow online claims submission, suggesting that some insurers have extended digitalization beyond sales toward operational service processes. However, only five companies provide mobile applications, which indicates that the development of fully integrated digital ecosystems remains limited. Most importantly, none of the analyzed insurers explicitly mention the use of artificial intelligence or advanced analytics in underwriting, pricing, or claims management processes. In percentage terms, approximately 85% of insurers offer online quotation systems, 92% enable online policy purchase, and 62% provide online claims submission. Only about 38% of insurers have developed mobile applications. The absence of visible artificial intelligence adoption (0%) suggests that the sector has not yet entered the stage of algorithm-driven insurance operations that characterize more technologically advanced markets. These data indicate that the process of digital transformation is still ongoing and suggest that digital transformation in Kosovo is currently concentrated mainly on customer-related services rather than on the core technical functions of insurance operations.

In other words, digitalization appears to be primarily distribution-oriented, focusing on improving accessibility and convenience for policyholders through online interfaces. In contrast, the deeper technological transformations described in the literature such as AI-supported underwriting, predictive risk modeling, and automated claims analytics are not yet visibly integrated into the operational infrastructure of most insurers in the Kosovo insurance market.

Unlike the current reality of digital transformation in Kosovo, the global literature highlights the increasing adoption of AI-driven underwriting, machine-learning-based pricing models, the integration of catastrophe models, and automated claims analytics in more developed markets. Therefore, if we compare Kosovo with these developments, the insurance sector can be characterized as being at an early stage of digital maturity. The transformation is gradual and service-oriented rather than a structural technological transformation.

This pattern is consistent with developments observed in many emerging markets, where digital transformation often begins with online distribution and improvements in customer interfaces before extending to deeper technical and actuarial functions. Potential barriers to deeper technological integration in Kosovo may include the relatively small market size, high investment costs, existing IT infrastructure, regulatory uncertainty regarding advanced artificial intelligence applications, and the limited availability of specialized data science expertise.

Overall, although the insurance market in Kosovo demonstrates meaningful progress in the availability of digital services, the absence of visible artificial intelligence integration suggests that the sector has not yet entered the advanced phase of algorithm-driven and data-analytics-based transformation described in the global literature.

To complement the results presented in Table 1, Figure 1 continues the illustration of the level of digital service adoption among insurance companies. The figure presents the percentages for the main digital functionalities of insurance companies.

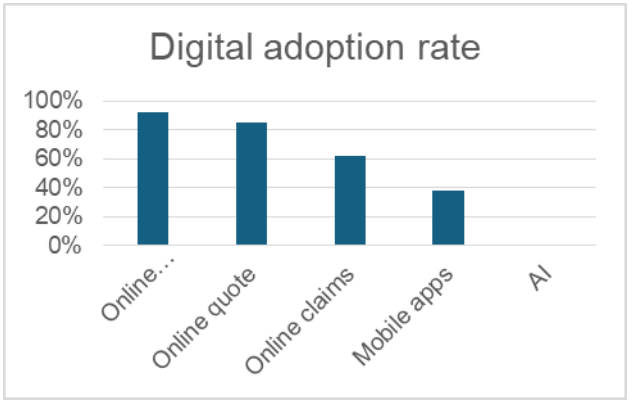


Figure 1. Digital adoption rate among insurance companies in Kosovo

Figure 1 shows that online policy purchase represents the most widespread digital functionality in the insurance market, with about 92% of companies offering this service. Online quotation systems follow with a high percentage of 85%, while the availability of online claims submission is lower, with around 62% of insurers allowing customers to submit claims through online platforms.

A significantly lower level of adoption is observed for mobile applications, which are offered by only about 38% of insurers. Most importantly, none of the analyzed companies explicitly mention the use of artificial intelligence in their operations. This absence of artificial intelligence adoption further supports the conclusion that digital transformation in the insurance sector in Kosovo is currently mainly concentrated on customer-related services rather than on deeper technological integration in underwriting, pricing, and risk modeling processes.

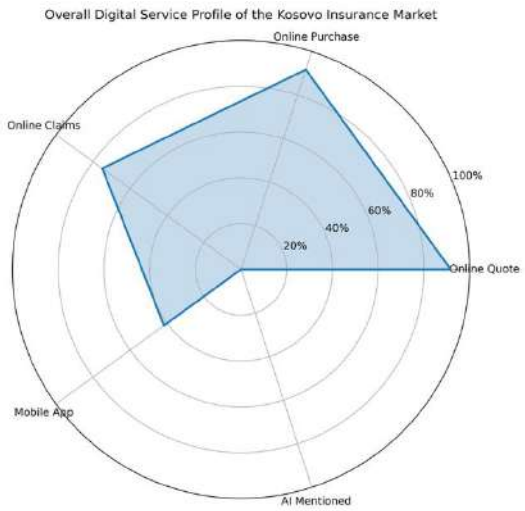


Figure 2. Radar chart of digital service adoption in the Kosovo insurance market

Figure 2 provides a visual representation of the overall digital service profile of the insurance market in Kosovo. The radar chart illustrates the proportion of companies that provide key digital functionalities, including online quotation systems, online policy purchase, online claims submission, mobile applications, and references to artificial intelligence. The figure shows that online policy purchase and online quotation represent the most widespread digital services, offered by most insurers. Online claims submission is available in a moderate proportion of companies, while mobile applications are significantly less common. Most importantly, none of the analyzed insurers explicitly mention the use of artificial intelligence in their services. This visual overview confirms that the current stage of digital transformation in Kosovo is primarily focused on customer-facing digital services rather than on advanced technological integration in core insurance operations such as underwriting, pricing, and risk analytics.

The linear regression analysis was conducted to examine the relationship between different digital service components and the overall level of digitalization, measured by the Digitalization Index (DI). The results suggest that the presence of mobile applications is positively associated with higher levels of digitalization. In addition, companies offering online claims submission tend to exhibit higher digital maturity, indicating that digital transformation extends beyond customer-facing services toward operational processes.

Table 2. Linear regression results

Variable	Coefficient (β)	Std. Errorr	p-value
Mobile App	1.19***	0.19	0.000
Online Claims	0.84**	0.21	0.004
Online Purchase	0.78*	0.35	0.053
Constant	1.16**	0.38	0.016

Mobile application availability is strongly and positively associated with the Digitalization Index ($\beta = 1.19$, $p < 0.001$). Similarly, online claims functionality shows a statistically significant positive relationship with digitalization ($\beta = 0.84$, $p < 0.01$). Online purchase is positively related but only marginally significant ($p \approx 0.05$).

These findings are consistent with the existing literature on digital transformation in insurance, which suggests that digitalization typically evolves from basic online services toward more integrated and operational digital systems. The results indicate that in the Kosovo insurance market, digital maturity is still primarily driven by customer-oriented services, while deeper technological integration remains limited.

5. CONCLUSION

The restructuring of insurance companies is being reshaped by technological innovations, specifically in the processes of risk underwriting, pricing, claims management, and product distribution. In developed countries, the review of the literature clearly shows a transition from traditional rule-based processes toward more automated data-driven systems supported by artificial intelligence, advanced analytics, and digital platforms. This technological transition undoubtedly increases efficiency, improves the accuracy of risk assessment, and expands customer access, but at the same time it also introduces important challenges related to fairness, transparency, privacy, and model governance.

The transition of digital transformation has also affected Kosovo. The analysis of the insurance market confirms this, but it remains mainly service oriented. Most insurance companies provide options for obtaining online quotations and purchasing policies electronically, while some of them also offer digital claims reporting and mobile applications. However, there is no visible evidence of the use of advanced artificial intelligence systems in underwriting or predictive pricing tools. Compared with global trends, Kosovo appears to be in an early stage of digital maturity, where transformation focuses mainly on improving the customer interface rather than restructuring core technical processes. The empirical mapping of digital services among insurance companies in Kosovo confirms that digital transformation is underway but remains mainly concentrated on front-end service delivery rather than on core analytical and actuarial functions. The econometric findings further support the conclusion that digital transformation in Kosovo remains primarily service-oriented and has not yet reached advanced stages of technological integration. The next step of digital development for insurance companies in Kosovo requires strategic investments in data infrastructure, analytical capabilities, and cybersecurity. For regulators, the main challenge will be to ensure that the adoption of technology remains consistent with prudential standards, consumer protection, and data privacy requirements. Policymakers may also consider creating supportive frameworks that encourage innovation while maintaining regulatory oversight.

In conclusion, digital transformation in the insurance sector represents both an opportunity and a structural challenge. While technology can significantly improve operational efficiency and market accessibility, sustainable progress depends on balancing innovation with trust, transparency, and responsible governance. The future development of the insurance sector in Kosovo will depend on how effectively it manages this balance.

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