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THE FUTURE OF INSURTECH: A LITERATURE REVIEW

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Abstract

The insurance industry is undergoing a profound transformation driven by InsurTech, which integrates advanced technologies like artificial intelligence, big data, blockchain, and the Internet of Things into traditional insurance practices. This paper explores the current state of InsurTech, with a focus on the role of innovation and entrepreneurship in reshaping the sector. By examining technological advancements and emerging business models, the study highlights InsurTech's potential to enhance operational efficiency, improve customer experiences, and offer personalized insurance products. The review also delves into the challenges and opportunities faced by InsurTech startups, including regulatory hurdles, data privacy concerns, and competition from established insurers. Drawing on recent literature and case studies, this manuscript provides valuable insights into the transformative impact of InsurTech and its implications for the future of the insurance industry.

Keywords: InsurTech, Innovation, Insurance, Technological Innovation, Entrepreneurship

INTRODUCTION

The insurance industry, one of the oldest and most established sectors in the global economy, has traditionally been characterized by conservative business models and slow adoption of new technologies. *'The application of technology to the traditional insurance business takes the name of InsurTech, a new term born from the merger of Insurance and Technology'* (Cosma & Rimo, 2024, p. 1). However, in recent years, InsurTech has emerged as a disruptive force, leveraging innovations in data analytics, artificial intelligence (AI), blockchain, and the Internet of Things (IoT) to transform various aspects of the industry. The increasing use of technology to enhance customer experiences, optimize underwriting processes, improve claims management, and provide personalized insurance products is reshaping the market dynamics.

Entrepreneurs, startup and technology firms are at the forefront of this transformation, developing new business models and solutions that challenge traditional insurance practices. InsurTech represents a fundamental shift in how insurance services are delivered, managed, and consumed. This manuscript reviews the current state of InsurTech, examines the role of innovation and entrepreneurship in shaping its future, and explores the opportunities and challenges that lie ahead.

This literature review contributes to the research on the evolution of InsurTech and corresponding changes in the customers' expectations and growth of technology. While InsurTech has not yet significantly disrupted the insurance industry, its innovative business models and the ongoing digital transformation are expected to intensify competition in insurance market (Braun & Schreiber, 2017). This evolution may eventually force incumbent insurers to rethink their strategies or face disintermediation. Pauch & Bera (2022) suggested that the adoption of new technologies and widespread digitization significantly influence customer expectations, a trend that became particularly evident during the COVID-19 pandemic. The insurance companies are going under the organizational process changes coupled with the increasing importance of decision support systems in insurance operations and measures aimed at assisting consumers (Pauch & Bera, 2022). Coi et al. (2021) offer an in-depth exploration of how InsurTech is transforming the insurance value chain, from customer acquisition to claims handling. They examine the roles of AI, big data, and machine learning in improving risk assessment and underwriting processes. The study also analyzes InsurTech's potential effects on business models and customer interactions, concluding that the insurance industry's future will increasingly depend on collaborations between technology companies and traditional insurers to deliver more tailored and efficient solutions. La Barbera (2023) examined the impact of InsurTech through a case study of Lemonade, a company with a distinctive business model that diverges from traditional insurance methods. The study evaluated Lemonade's approach, its implications for the industry, and the challenges it faces. By contextualizing Lemonade within the broader insurance landscape, La Barbera (2023) highlighted how InsurTech is redefining insurance services and enhancing consumer experiences. Additionally, it explored the future implications of these trends for insurance companies, consumers, and the industry, emphasizing the pivotal role of technology and innovation in shaping the sector's future. Through conducting

qualitative research, Widyani (2023) identifies the factors driving the growth of InsurTech in Indonesia and explores how InsurTech spurs business model innovation, what gaps exist between current insurance business models and those required for future development, and the capacities needed to bridge these gaps. Zarifis & Xusen (2022) explored and compared the factors influencing trust in FinTech and InsurTech. Using Multigroup Structural Equation Modeling, they developed and analyzed a model of trust formation to determine whether trust is built similarly in both sectors. Their findings are particularly valuable for organizations offering integrated FinTech and InsurTech services, often through shared platforms or applications. In what follows, I present an overview of the current state of research on InsurTech and within the field of entrepreneurship and innovation.

The Current InsurTech Landscape and Business Models

Although technology has been utilized in the insurance industry for decades, the term "InsurTech" only emerged in 2011 and gained significant traction as a buzzword by late 2015. While technology seems to offer service and can be adopted anywhere, the role of geography in flourishing the InsurTech companies is evident. The United States quickly became the epicenter of InsurTech innovation, hosting the majority of global firms (658 firms), followed by the United Kingdom (83 firms), India (43 firms), and Germany (34 firms). Within the U.S., InsurTech activity is heavily concentrated in California (165 firms), New York (78 firms), Illinois (43 firms), and Texas (41 firms). Predictably, Google Trends data reveals strong interest in terms like "insurance technology" and "InsurTech" in these regions over the past five years (Braun & Schreiber, 2017). Similarly, InsurTech funding activity follows this geographical trend, with the U.S. dominating the majority of deals in 2016 (Braun & Schreiber, 2017). Braun and Florian (2017) categorized InsurTech to nine categories. Table 1 presents these nine categories and what they offer. Each category is associated with at least two business model patterns and falls under one of three higher-level groups: distribution, risk carrier, or technology.

Table 1 –
InsurTech Categories

No.	Description	What they offer?
1	Comparison Portals	Enable online comparisons between various (insurance) products and provider types
2	Digital Brokers	Brokerage of insurance policies through web-based portals or mobile apps
3	Insurance Cross Sellers	Offer insurance as complements to products (typically at the point of sale or in an own app)

No.	Description	What they offer?
4	Peer-to-Peer Insurance	Bring together private parties for mutual insurance coverage
5	On-Demand Insurance	Offer coverage for selected periods of time
6	Digital Insurers	Offer fully digital insurance solutions that are only accessible via online channels
7	Big Data Analytics & Insurance Software	Provide software solutions
8	Internet of Things	Enable data collection via smart devices
9	Blockchain & Smart Contracts	Create solutions for a tamper-proof distributed database system for transactions

The Evolution of InsurTech

The term "InsurTech" describes the intersection of insurance and technology. The root of InsurTech can be traced back to the digital transformation of other industries, particularly in banking and finance. However, it was not until the rise of smartphones, big data, and cloud computing that the insurance industry began to experience a more rapid and widespread adoption of technology (Liu, Ye, Zhang, & Zhang, 2023).

At first, InsurTech startups focused on creating digital platforms for comparison, aggregation, and distribution of insurance products. These platforms aimed to make the process of purchasing insurance simpler, faster, and more transparent for consumers. Gradually, InsurTech evolved beyond distribution of information and started addressing other core aspects of the insurance value chain, including underwriting, claims management, fraud detection, and risk mitigation. For instance, in China InsurTech has brought new opportunities for innovation in the field of insurance by combining mobile Internet, cloud computing, and big data with traditional financial services and lead to advantages of high efficiency, omnidirectionality, stronger customer reach, and geographic penetration.

The first wave of InsurTech innovation was primarily driven by entrepreneurs with backgrounds in technology, finance, and data science. These innovators identified pain points in the traditional insurance process—such as inefficiencies, lack of transparency, and poor customer engagement—and developed solutions that leveraged technology to solve these problems. As these early startups gained attraction, they attracted significant investment and began to scale, signaling the growing importance of InsurTech in the insurance industry.

InsurTech companies tend to view their potential as more disruptive compared to how incumbents perceive it, which could drive more transformative actions in the future. Innovative business models are emerging, including digital insurers providing personalized coverage based on individual risk assessments and peer-to-peer models

that might eliminate the need for traditional insurance intermediaries, posing a challenge to the traditional role of insurance companies (Braun & Schreiber, 2017).

Key Technological Innovations Driving InsurTech

Several technological innovations have been pivotal in driving the growth and transformation of InsurTech. These innovations are enabling insurers to enhance operational efficiency, improve customer experiences, and develop more personalized insurance products. The advancement of InsurTech has greatly enhanced technological innovation within insurance companies. Mechanistically, InsurTech primarily boosts the innovation capabilities of these companies by easing financing constraints (Liu, Ye, Zhang, & Zhang, 2023).

AI and Machine Learning

AI and Machine Learning (ML) are two of the most transformative technologies in the InsurTech space. AI is being used in various ways, from automating administrative tasks to improving underwriting and claims processing. ML algorithms can analyze vast amounts of data to identify patterns, assess risks, and predict future events with greater accuracy. For example, AI-powered chatbots are being used to handle customer inquiries, while predictive analytics models can assess risk levels and recommend appropriate coverage for individual customers. Trust in InsurTech is shaped by psychological, sociological, organizational, and technological factors (Zarifis & Cheng, 2022).

AI is revolutionizing claims management by enabling insurers to process claims faster and more accurately. InsurTech companies are increasingly using AI to detect fraud by analyzing large datasets for unusual patterns of behavior that could indicate fraudulent activity. The ability to leverage AI for risk assessment and fraud detection is significantly improving the efficiency and cost-effectiveness of insurance operations.

Big Data and Predictive Analytics

Big data plays a central role in InsurTech by enabling insurers to collect, analyze, and use vast amounts of data from various sources, such as social media, IoT devices, and wearables. The insights derived from big data can help insurers better understand customer behavior, optimize pricing models, and offer more personalized insurance products.

Predictive analytics, using historical data to predict future outcomes, is transforming the insurance industry. Insurers can now use predictive models to assess the likelihood of claims, optimize pricing, and improve risk management. For example, telematics data from connected cars can help insurers offer usage-based insurance policies, where premiums are based on an individual's driving behavior.

Blockchain Technology

Blockchain technology, best known for its use in cryptocurrency, has the potential to revolutionize the insurance industry by improving transparency, security, and efficiency. Blockchain can be used to create decentralized and immutable records of transactions, which could significantly reduce fraud and errors in the insurance process.

Cosma & Rimo (2024) point to 'a growing trend in scientific production on InsurTech and a strong focus on the implications of artificial intelligence and blockchain on the insurance sector'. Additionally, their analysis 'highlighted a strong collaboration

between information technology and economics disciplines and the need for an interdisciplinary approach to understand the InsurTech phenomenon fully' (Cosma & Rimo, 2024, p. 1).

In addition to improving claims processing, blockchain can enable peer-to-peer insurance models, where groups of individuals pool resources to cover shared risks (Wang, 2021). These decentralized models could disrupt traditional insurance intermediaries and provide consumers with more flexible and affordable coverage options. Smart contracts, self-executing contracts with predefined conditions, can also be used to automate claims payouts and policy renewals, reducing administrative costs and improving the customer experience.

Internet of Things (IoT)

The Internet of Things (IoT) is another critical technology shaping the future of InsurTech. IoT devices, such as smart home sensors, wearables, and connected vehicles, generate vast amounts of data that can be used to monitor risks in real time. For instance, insurers can use IoT-enabled devices to track driving behavior, detect potential hazards in homes, or monitor the health of policyholders.

By leveraging IoT data, insurers can offer more personalized and dynamic pricing models. IoT-driven solutions enable insurers to collect real-time data for more accurate risk assessments (Braun & Schreiber, 2017). For example, a car insurance policy might be priced based on how safely an individual drives, or a home insurance policy could be adjusted based on the presence of smoke detectors and security systems. IoT devices can help prevent losses by providing early warnings about potential risks, such as a leak in a home or a malfunctioning vehicle.

Entrepreneurship & Innovation in InsurTech

Entrepreneurship plays a central role in the growth and innovation of the InsurTech sector. InsurTech startups are challenging traditional insurers by offering new, customer-centric solutions that leverage cutting-edge technologies. Entrepreneurs in this space are not just developing new products but are also reimagining the entire insurance value chain, from distribution and underwriting to claims and customer service.

InsurTech's ability to drive innovation in business models is particularly apparent in the consumer-facing aspects of insurance product delivery. By enabling a direct relationship between insurance companies and consumers, InsurTech fosters greater speed, convenience, and transparency. It tackles issues like insurance overselling and fraud prevention while building trust through clear communication and comprehensive information sharing (Widyani, 2023).

Startups and Disruptive Business Models

Many InsurTech startups have introduced disruptive business models that challenge the traditional insurance paradigm. InsurTech startups focusing on innovative business models like peer-to-peer insurance and on-demand coverage are often characterized by their agility and customer-centric approach. By focusing on the needs and preferences of consumers, InsurTech entrepreneurs are creating insurance products that are more aligned with modern expectations. Additionally, many InsurTech companies are embracing a direct-to-consumer (D2C) model, bypassing

traditional intermediaries like brokers and agents, which allows them to offer lower premiums and a more seamless customer experience. Moreover, startups are pushing boundaries with AI, Big Data, and IoT to transform customer experiences and operational efficiency (Braun & Schreiber, 2017).

Collaboration with Traditional Insurers

While many InsurTech startups aim to disrupt traditional insurers, there is also growing collaboration between startups and established insurance companies. Traditional insurers are recognizing the value of partnering with InsurTech startups to access new technologies, improve their customer offerings, and increase operational efficiency. Traditional insurers are forming partnerships with InsurTech startups and investing in digital transformation through corporate venture arms, accelerators, and incubators (Braun & Schreiber, 2017).

This collaboration is beneficial for both parties. Startups gain access to the financial resources, regulatory expertise, and market reach of established insurers, while traditional insurers can accelerate their digital transformation and improve their competitiveness in an increasingly tech-driven market.

Challenges and Opportunities for InsurTech Entrepreneurs

While the future of InsurTech is filled with potential, entrepreneurs in this space face several challenges. These challenges include regulatory hurdles, data privacy concerns, competition from established insurers, and the need for significant capital investment to scale operations.

The insurance industry is highly regulated, and InsurTech entrepreneurs must navigate a complex regulatory landscape to bring their products to market. Regulations vary by country and jurisdiction, making it difficult for global InsurTech startups to scale. Additionally, regulations around data privacy and security are becoming increasingly stringent, and entrepreneurs must ensure that their technologies comply with these requirements. Regulatory challenges, data privacy concerns, and the evolving competitive landscape from traditional insurers are the main barriers to emerging InsurTech companies (Braun & Schreiber, 2017).

InsurTech companies must implement robust data protection measures to safeguard sensitive customer information. Failure to do so could lead to reputational damage, legal consequences, and a loss of consumer trust.

The limited partnerships in the industry make it challenging for new InsurTech companies to sustain themselves over time, raising concerns about the scalability of their business model. Additionally, a significant portion of startup funds is allocated to policy distribution, leaving limited resources to invest in other critical areas of insurance, such as underwriting, claims management, and ensuring regulatory compliance (Rawat, Rawat, Kumar, & Sabitha, 2021). Venture capital firms and incubators/accelerators are focusing heavily on InsurTech as a strategic investment opportunity (Braun & Schreiber, 2017). Like any startup, InsurTech entrepreneurs face the challenge of raising capital to fund their operations and scale their businesses. While venture capital investment in InsurTech has been growing in recent years, competition for funding is fierce, and securing investment can be challenging. Entrepreneurs must demonstrate a clear value proposition, a strong business model, and the potential for growth to attract investors.

Established insurance companies have significant advantages over startups, including brand recognition, customer loyalty, and financial resources. As a result, InsurTech startups must be prepared to face intense competition from incumbents who are also investing in digital transformation and adopting new technologies. To succeed, InsurTech entrepreneurs must differentiate their offerings, continuously innovate, and focus on customer satisfaction.

The InsurTech sector is rapidly growing, and incumbents in the traditional insurance industry need to take this trend seriously. While most InsurTech startups are focused on enhancing traditional distribution methods and not yet introducing disruptive innovations, some are emerging as full-stack risk carriers. Many startups are seen as "enablers" rather than disruptors, with cooperation, rather than competition, being the preferred strategy for incumbents. Reinsurers, in particular, view InsurTech as an opportunity for partnerships, while brokers are more competitive, and primary insurers remain neutral (Braun & Schreiber, 2017).

CONCLUSION

InsurTech is redefining the landscape of the insurance industry, driving innovation across the value chain and reshaping the way insurance services are delivered and consumed. Through the adoption of cutting-edge technologies and innovative business models, InsurTech has enhanced operational efficiency, customer experiences, and personalization in insurance products. While entrepreneurs and startups are at the forefront of this transformation, collaboration with traditional insurers has proven to be a mutually beneficial strategy. Despite its immense potential, InsurTech faces several challenges, including regulatory complexities, data security concerns, and intense competition from established players. However, the industry's continued evolution, fueled by technological advancements and entrepreneurial ingenuity, underscores its pivotal role in shaping the future of insurance. As the sector adapts to these innovations, stakeholders must address existing challenges to realize the full potential of InsurTech and ensure sustainable growth.

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