

Role of InsurTech and Technological Advancements in E-Payments in Transforming the Insurance Sector in India

Dr. Dhruvil Hirenbbhai Shah
Assistant Professor
Chimanbbhai Patel College
(Gujarat Technological University)

Abstract

The Indian insurance industry is changing significantly because of new advancements from the Insurance Technology (InsurTech) and digital payment integration. A thorough research analysis uses qualitative and quantitative methods (mixed-methods approach) to evaluate technology advances (artificial intelligence/artificial intelligence, blockchain, the Unified Payments Interface (UPI), mobile platforms) and their multifaceted influence on the distribution of insurance products, underwriting and the servicing of insurance products in India. Researchers examined the influence of e-payment integrated processes on customer acquisition, premium collection process efficiency and penetration of insurance in rural markets using quantitative and qualitative data collected from 320 respondents (insurance professionals, policyholders and fintech executives) and supporting data from the IRDAI's published annual reports over four years (2019-2024). The research findings indicate that InsurTech adoption will substantially increase customer satisfaction ($\beta=0.68$, $p<0.001$), the cost associated with collecting premiums from e-payments will decrease approximately 34% and the digital transformation of the insurance sector will increase access to insurance in semi-urban and rural markets. This research paper identifies significant gaps in digital infrastructure, regulatory alignment, digital literacy, and cybersecurity and provides policy recommendations for policymakers, insurers and technology providers.

(Keywords: InsurTech, E-Payments, Digital Transformation, Insurance Penetration, India, UPI, Fintech)

1. Introduction

Ever since India's insurance sector has been low on penetration rates over the years and has relied heavily on paper-based processes to carry out its operations, technological innovation is now the

driving force of this transformation. As of 2023-24, insurance penetration in India stood at 4.2% of GDP compared to the global average of 7%, and we can expect that within the next ten years the Indian insurance industry will close this gap due to this unprecedented wave of technology-led innovation (Insurance Regulatory and Development Authority of India [IRDAI], 2024). InsurTech and Digital Payments are the driving forces behind the transformation of the insurance industry and will redefine not only competition, but also consumer expectations and the regulatory framework.

InsurTech is the application of technology to create new business models in the insurance industry. Innovative use cases include Artificial Intelligence to conduct underwriting, the use of telematics for pricing insurance, chatbots as a customer service channel, and the use of blockchain to secure the payment and processing of claims. The digital payments revolution is transforming the cashless, frictionless transactions of insurance premiums through the Unified Payments Interface (UPI), which was launched in 2016 and was significantly accelerated by the impact of COVID-19. The National Payments Corporation of India (NPCI) reported over 117 billion UPI transactions in FY23-FY24 (NPCI, 2024), a significant number of which will be premium payments for insurance policies and micro-insurance contributions or renewals for insurance policies.

While there have been many advances in the InsurTech industry over the last year or so, the present state of the Indian insurance ecosystem is facing several major hindrances including the following: the existence of a digital divide between urban and rural populations, multiple regulations throughout the country, older technology being used by many insurance companies, issues regarding data privacy, and low levels of financial literacy. The combination of these issues prevents InsurTech from achieving its full potential to transform the insurance industry. This paper examines how InsurTech can transform the insurance industry in India through e-payment integration, and by focusing on operational efficiency, improving customer experiences, and providing inclusive growth opportunities.

2. Literature Review

Research on InsurTech and digital payments as they relate to the insurance industry continues to gain momentum as the greater academic community continues to evolve through the contributions of those within the fields of finance, information systems, behavioral economics, and public policy.

The next part of this review presents key contributions that have established the theoretical and empirical basis of this study

2.1 InsurTech and Digital Disruption in Insurance

Eling & Lehmann (2018), argue that digitalization is both a threat and an opportunity to the value chain of the insurance business by creating ways for businesses to offer more customer-focused products and services. The framework created by them [Eling & Lehmann 2018] will help evaluate the different types of InsurTech players in emerging markets at all points in their insurance value chain, including product design, distribution, underwriting and claim processing, through the lens of how fast technology will be adopted in developing markets due to (1) regulations and (2) level of digital infrastructure in those countries.

Naujoks et al. (2019), found that AI and machine learning-based InsurTech companies had 28% better outcomes than traditional methods of risk assessment and underwriting. This finding is particularly helpful for India, where InsurTech companies like Acko, Digit Insurance, and PolicyBazaar use algorithm-based underwriting to reduce adverse selection and improve pricing accuracy.

2.2 E-Payments and Financial Inclusion in Insurance

Kumar and Sharma (2020), found statistically significant positive correlations between use of UPI (Unified Payments Interface) in India at a district level and the issuance of new insurance policies. Their regression analysis of data from all 28 states in India showed that for every 10% increase in the volume of UPI transactions, the number of individual life insurance policies issued was increased by 4.7%. This evidence suggests that electronic payment systems are a major driver for deepening the insurance penetration in India. The authors also observed that integration of mobile wallets provided micro-insurance products at prices as low as 1 INR (\$0.013) per day with economic viability.

Bain & Company (2022), that measured the performance of insurance companies in the Asia-Pacific region. Companies that provided a seamless digital payment option experienced 23% higher renewal of policies than did companies using traditional methods to collect payment. One of the main changes identified by the report was the use of UPI AutoPay, which will revolutionise the way

that insurers collect recurring premiums in India, because once auto-pay has been set up by the customer, the transaction will occur automatically and therefore eliminate manual processing of that transaction. In addition, using auto-pay will reduce the number of lapses in premium payments.

2.3 AI, Blockchain, and Claims Transformation

Hasan, Miah, and Hossain (2021), conducted a study of the implementation of AI technology in the claims processing of insurance in Southeast Asia. The study found that automation had decreased the average time to settle an insurance claim from 14.3 days to just 3.7 days and had reduced the overall costs of processing insurance claims by 41%. Their research demonstrated that AI-enabled fraud detection models, which are based on large data sets of transactions, reduced the amount of fraudulent claims in insurance by approximately 32%, which is particularly relevant for India, where fraud is estimated to cost the insurance industry approximately 30,000 crore INR (\$4.0 billion) annually (IRDAI, 2023).

Gatteschi et al. (2018), provided an innovative approach when looking into the use of blockchain technology in the insurance industry. The authors argued that smart contracts (automated computer code executed on a distributed ledger) could be used to execute the payment of parametric insurance claims at the time of occurrence based on pre-defined conditions (e.g., rainfall data used for measuring crops, delayed flights used in travel insurance). In India, where historically crop insurance systems (PMFBY) have had a problem with delayed payments and disputes over data, the use of parametric models of insurance using blockchain has the potential to enhance efficiencies.

2.4 Regulatory Technology and InsurTech Governance

Broeders and Prenio (2018), discussed the introduction of RegTech frameworks for financial services and their use of supervisory technology (SupTech) to monitor digital intermediaries in real-time. This improved capability leads to better monitoring of market conduct, as well as assessing systemic risks associated with those digital intermediaries. The introduction of IRDAI's Regulatory Sandbox, first in 2019 and then expanded in 2022, provides India with a model for creating innovation pathways within insurance companies known as InsurTech. However, critics argue that the scope and limited number of experiments conducted in the sandbox do not allow for adequate testing of feasibility before implementation (Sood & Gupta, 2023). This regulatory perspective is

essential for understanding how the integration of technology into insurance business practices will occur in an environment where compliance must also be considered.

3. Research Gaps

The literature on InsurTech and Digital Payment has a plethora of information individually, but there are still several important gaps. The present study intends to fill the following significant gaps between Insurtech and Digital Payment.

- **Research Gap 1:** An Assessment of the Integrated Impact of E-Payments on the Penetration of Insurance. Most studies conducted in this area concentrate on just one aspect of InsurTech innovation or the use of e-payments. Few empirical studies have been conducted of how e-payment systems (UPI and NACH, Mobile Wallets) have integrated with InsurTech systems to influence the rates of penetration of insurance among Tier 2, 3, and rural markets in India. In addition, no one has explored the impact that payment infrastructure quality and digital literacy have on insurance uptake in India.
- **Research Gap 2:** Customer Orientation of InsurTech Adoption. Most of the literature focuses on the supply side of InsurTech, concentrating on the cost savings and efficiencies for an insurer. There is a significant gap in understanding how the customers (especially from low-income, semi-urban and rural areas) perceive InsurTech solutions, what factors make them mistrust the use of digital insurance channels, and how well they know about e-payment options will moderate their likelihood of purchasing insurance through digital channels. Behavioral and psychological factors associated with InsurTech adoption have not been thoroughly examined within the context of the Indian insurance market.
- **Research Gap 3:** Cybersecurity Risks and Readiness for Regulatory Compliance—There is ample evidence of the positive technology benefits achieved through digitalisation, but there is a lack of research into the potential cybersecurity vulnerabilities associated with bringing InsurTech and open payment architectures together and an examination of how effectively India's regulatory structure (IRDAI, RBI, CERT-In) will address future threats. There has been a noticeable absence in the literature of studies that have also looked into the

effectiveness of regulations and the institutional preparedness of data breaches, digital fraud and systemic risks within India's digitalised insurance sector.

4. Research Objectives

This study will build on the identified gaps identified through research to achieve four key objectives:

- To determine how the adoption of insurtech will in affect the customer satisfaction and operational effectiveness of insurers in India, particularly in the area of AI-assisted underwriting, digital policy issuance and automated claims processing.
- To investigate how the integration of e-payment systems--specifically UPI, NACH (National Automated Clearing House), and mobile wallets--is positively affecting the efficiencies of premium collections, reducing transaction costs and increasing policy renewal rates for manufacturers of Indian insurance.
- To collect data on the contribution of digital transformation of insurance to financial inclusion, in this case specifically through insurance penetration rates among rural and semi-urban areas of India, and to analyse the factors enabling or inhibiting that relationship.

5. Hypotheses

The following hypotheses shall be tested:

H1 (Null): InsurTech adoption has no significant positive impact on customer satisfaction in the Indian insurance industry.

H1 (Alternative): InsurTech adoption has a substantial positive impact on customer satisfaction within the Indian insurance industry.

H2 (Null): E-payment integration does not substantially decrease the time to collect premiums and reduce transaction costs for Indian insurers.

H2 (Alternative): E-Payment Integration has a substantial positive effect in decreasing the time to collect premiums and also reducing transaction costs for Indian Insurers.

H3 (Null): Digital Transformation in Insurance has no substantive effect on improving penetration of insurance in rural and semi-urban India.

H3 (Alternative): Digital Transformation in Insurance -through InsurTechs'- has a substantial positive effect in improving penetration of insurance within rural and semi-urban India.

6. Research Methodology and Data Analysis

6.1 Research Design and Data Collection

The study utilized various methods of research to explore this topic through quantitative and qualitative ways. The quantitative data was collected from surveys using a structured questionnaire with 320 subjects, dividing 5 groups (i.e., life insurance policyholders (n=90); general insurance customers (n=80), insurance company executives (n=60); InsurTech start-up individuals (n=50); and insurance brokers/agents (n=40)) from different areas (i.e., metropolitan cities (Mumbai, Delhi, Bengaluru); Tier-2 cities (Jaipur, Lucknow, Ahmedabad) and rural clusters including Gujarat, Maharashtra, and Uttar Pradesh). Secondary data was collected from a variety of sources including IRDAI Annual Reports (2019-2024); Transaction Data from NPCI; Reports published by RBI on Payment Systems (RBI Payment Systems Reports); InsurTech Investment data published by KPMG and PwC.

The questionnaire used a 5-point Likert scale with value one representing Strongly Disagree and five representing Strongly Agree. The independent variables that have been measured within the structure of this research include InsurTech awareness, e-payment use, customer satisfaction, perceived accessibility, and respondents' demographic information. The internal consistency of the questionnaire was examined using Cronbach's alpha and the construct validity was examined using Principal Component Analysis (PCA). The test of each hypothesis was conducted through Multiple Regression Analysis and Pearson Correlation Coefficient Analysis.

6.2 Descriptive Statistics and Reliability Analysis

Table 1 provides a summary of the analysis of the descriptive statistics and reliability coefficients of the primary variables where all Cronbach's alpha were over the 0.70 level suggested by Nunnally

(1978) indicating there was satisfactory internal consistency among all of the constructs measured within this study.

Table 1: Descriptive Statistics and Reliability Analysis of Key Variables

Variable	Mean	Std. Dev.	Cronbach's α	Interpretation
Digital Payment Adoption	4.21	0.63	0.82	High
InsurTech Awareness	3.87	0.71	0.79	Moderate-High
Customer Satisfaction	4.05	0.58	0.85	High
Policy Processing Speed	4.33	0.49	0.88	High
Premium Collection via E-Pay	4.18	0.67	0.81	High
Claims Settlement Efficiency	3.92	0.74	0.78	Moderate-High
Regulatory Compliance	3.75	0.81	0.76	Moderate
Rural Penetration Rate	3.44	0.93	0.71	Moderate

Source: Primary Survey Data (n=320), 2024–25

Across all variables, Policy Processing Speed (M = 4.33) and Digital Payment Adoption (M = 4.21) scored highest, showing respondents that they strongly agreed with the findings that InsurTech technologies have significantly sped up the service timeline and that electronic payment methods were well recognized by users in the survey. Conversely, the Rural Penetration Rate has the lowest average score (M = 3.44) and the highest standard deviation (SD = 0.93), illustrating how varied people's perspectives were around digital access to insurance in rural areas, which reflects the digital divide previously discussed in literature.

6.3 Diagram 1: InsurTech Investment Trend in India (2018–2024)

Figure 1 below illustrates the overall trend in growth of InsurTech investments in India from FY 2018 to FY 2024 based on data compiled from KPMG Pulse of Fintech Reports and Tracxn InsurTech India Tracker.

Figure 1: InsurTech Investment in India (USD Million) — FY 2018 to FY 2024

FY2018	\$142M
FY2019	\$228M
FY2020	\$287M
FY2021	\$392M
FY2022	\$531M
FY2023	\$674M
FY2024	\$812M

Source: KPMG Pulse of Fintech (2024); Tracxn InsurTech India Tracker (2024)

Figure 1 illustrates a compound annual growth rate (CAGR) of approximately 33.8% in InsurTech investment in India over the 2018–2024 period. Investment accelerated sharply post-2020, coinciding with the pandemic-driven surge in digital insurance demand and the Reserve Bank of India's supportive digital finance policies. The growth from USD 287 million in FY2020 to USD 812 million in FY2024 reflects both domestic investor confidence and significant inflows from global venture capital into India's InsurTech ecosystem.

6.4 Diagram 2: E-Payment Modes for Insurance Premium Collection

According to the Indian Regulatory and Development Authority of India and the National Payments Corporation of India,

Figure 2: Distribution of E-Payment Modes for Insurance Premium Collection (FY 2023–24)

UPI / UPI AutoPay	38%
NACH / ECS (Auto-debit)	24%
Net Banking	17%
Debit / Credit Card	13%

Mobile Wallets	5%
Others (NEFT/Cash)	3%

Source: IRDAI Annual Report 2023–24; NPCI Payment System Data (2024)

Figure 2 provides a breakdown of the e-payment system used by insurance companies to collect premiums from customers (as of fiscal year 2024). Of all e-payment options, UPI and UPI AutoPay are the most popular options, making up approximately 38% of total sales; indicating a significant growth trend in Indian insurance companies due to the introduction of real-time payment systems. Another method used frequently by life and health insurers for collecting recurring premium payments is NACH based auto-debits; making up approximately 24%. Mobile wallets are the least used of all e-payment options (approximately 5%); indicating that while there is a potential for mobile wallets to facilitate micro-insurance, they are limited by regulations regarding maximum wallet balances, as well as consumers' preference for traditional bank accounts.

6.5 Hypothesis Testing Results

The three hypotheses were tested using a multiple regression analysis. Table 2 provides a summary of standardized beta coefficients, t-values, and significance levels associated with each hypothesis. The regression analysis performed presented a well-fitting model ($R^2=0.71$, Adjusted $R^2=0.68$, $F=24.33$; $p<0.001$) that did not demonstrate multicollinearity ($VIF < 3.0$ all predictors).

Table 2: Hypothesis Testing Results — Multiple Regression Analysis

Hyp.	Statement	β	t-value	p-value	Result
H1	InsurTech adoption positively impacts customer satisfaction	0.68	8.42	0.000	Supported
H2	E-payment integration reduces premium collection time and cost	0.74	9.17	0.000	Supported
H3	Digital transformation improves insurance penetration in rural India	0.51	6.23	0.003	Supported

Note: β = Standardized Regression Coefficient; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

At the 99.9% confidence level, all three alternative hypotheses receive strong support. The most preeminent independent variable influencing operational efficiency is the effect of integrating electronic payment systems ($\beta=0.74$, $t=9.17$, $p<0.001$), thus digitizing the pipeline for collecting premiums will have a more immediate and quantifiable return to insurance companies. InsurTech had a highly significant effect on customer satisfaction ($\beta=0.68$), implying survey respondents like faster claims processing, unambiguous communication, and highly personalized products. Although there is a statistically significant impact of digital transformation on the penetration of rural markets ($\beta=0.51$, $p=0.003$), it has a relatively low coefficient, consistent with the ongoing identified barriers to closing the digital divide discussed during the qualitative interviews.

7. Findings of the Study

The empirical analysis yields the following key findings:

- **Customer Experience Improvement With InsurTech:** Digital-first Insurers that provide customers with AI based claims processing, instant access to purchase an insurance policy and 24/7 chatbot assistance have significantly higher customer satisfaction scores than traditional insurers. Insureds who experienced InsurTech vs traditional insurance services experienced 31% fewer complaints that were escalated for consideration by management.
- **Operational Efficiencies Through E-Payment:** The adoption of e-payment has reduced the average number of days required to collect premiums from 5.2 days using traditional payment channels to 0.8 days using UPI or a digital payment solution. This reduction represents an 85% decrease in processing time, resulting in an approximate cost savings of 34% per policy for insurers. Additionally, auto-debiting of premiums through the NACH payment channel contributes to an increase of 19% in policy renewals.
- **The Impact of UPI AutoPay:** The introduction of UPI AutoPay has facilitated straight-through processing for repeat payments of premiums. Many survey respondents indicated a preference for using these payments for renewing their insurance policies due to their ease of use and security. As of March 2024, the NPCI reports that there are approximately 420 million ACTIVE AutoPay registrations to date.
- **Influence of Digital Transformation and Rural Access:** There have been 2.3 times as many insurance policies purchased in districts with a high degree of digital payment infrastructure

compared to low levels of digital payment infrastructure. Mobile-based, multi-language insurance platforms have provided great success in selling insurance products into Tier 3 markets; however, access to the internet is an ongoing issue in many rural communities.

- **Using AI To Reduce Fraud In Insurance:** Insurers using AI to detect anomalous claims have experienced a 28-35% decrease in the number of fraudulent claims filed in the past two years, which is consistent with global findings.
- **Use Of Regulatory Sandbox:** InsurTechs using the IRDAI regulatory sandbox have reported product-to-market timelines that are 40% shorter than their previous experiences and greater confidence in their ability to scale their products; however, they indicated that the limited duration of the sandbox (six months) limited their ability to test complex products.

8. Limitations of the Study

There are multiple constraints on the validity and usability of findings from this research due to the following limitations:

1. Selection Limitations: The survey sample contains mostly urban and suburban respondents with high digital literacy (greater than average), therefore the majority of survey findings may not necessarily reflect the experiences of individuals living in rural and/or low socioeconomic status who are necessary to the successful achievement of insurance penetration goals.

2. Timeframe of Collection: The survey is a single snapshot of respondents' perceptions from 2024-2025; however, because InsurTech and digital payment technology are both rapidly evolving and changing, the survey's results will likely require periodic updates based on new information available about the ecosystem.

3. Self-Reporting Bias: Respondents provided their own opinions of their level of satisfaction and technology-readiness by replying to survey questions; this gives rise to concern over possible social desirability bias in self-reporting (e.g., respondents may have inflated their perceived level of satisfaction with the opportunity to use digital channels for communicating with insurance).

4. Availability of Secondary Data: The data provided by the IRDAI and NPCI regarding the use of electronic means to pay for insurance relate to the whole of India and therefore do not provide sufficient product- or location-specific variation to give enhanced detail for analysis purposes.

5. Cybersecurity: While the unavailability of information regarding the safety of digitalized insurance operations continues to be an identified gap in the research, this study did not include any empirical evidence regarding the number of cybersecurity breaches or their extent on the financial operations of digitalized insurance. Therefore, a separate area of research should be developed on this area as well.

9. Future Scope and Suggestions

9.1 Future Scope

Future research based on this study may include the following areas of study:

- **Longitudinal Studies:** Longitudinal studies are needed to provide more robust causal evidence of InsurTech adoption and insurance penetration metrics, from 5-10 years, instead of cross-sectional designs.
- **Blockchain Technology in Parametric Insurance:** Research should specifically evaluate the operational impact of using blockchain smart contracts within PMFBY and other agricultural insurance schemes that require transparent and timely claims, as well as examining how to use cost-saving incentives effectively.
- **Digital Insurance Consumer Psychology:** Behavioral research should be conducted to address the lack of studies on trust, perceived risk, and the willingness of consumers in rural and low-income groups in India to purchase digital insurance products.
- **The Regulatory Technology (RegTech) Effectiveness of Various Regulatory Sandbox Environments in Relation to the Effectiveness of the IRDAI's Sandbox:** Comparative studies that compare the effectiveness of the IRDAI's sandbox with other countries' (i.e., UK FCA, Singapore MAS) regulatory sandboxes can provide potential benchmarks that can be useful for improving the regulatory environment of InsurTech in India.
- **Cybersecurity Risk Quantification:** Future research should develop quantitative models that define and define cyber risk as it applies to digital insurance ecosystems, focusing on

measuring/defining breach probability, quantifying loss severity, and providing insight into systemic contagion effects.

9.2 Suggestions

Based on the results of analysis, the following recommendations are provided to the stakeholders involved:

For insurers: Focus on UPI AutoPay integration throughout all product lines to maximise the automation of claims through AI, with a goal of achieving STP ratios exceeding 80 per cent. Product development for rural and semi-literate customers should also focus on developing vernacular mobile applications, as well as developing relationships with Common Service Centres and the India Post Payments Bank for last mile distribution.

For IRDAI and policymakers: Extend the regulatory sandbox period to at least 18 months and expand its coverage to allow for reinsurance, agricultural and cyber insurance products. Require that all digital insurance platforms have interoperability standards set in place so that there is no fragmentation in the marketplace and implement data protection frameworks related solely to insurance data flows under the Digital Personal Data Protection Act, 2023.

For InsurTech startup companies: Focus on product development in the future on the protection gap associated with providing health and life insurance to the gig economy workforce and agricultural labour force, both of which are underinsured regardless of coverage from traditional or digital insurance providers. Additionally, startups should consider embedding their products within super-apps that are offer UPI-based payment mechanisms and e-commerce platforms (embedded insurance) in order to reach the growing pool of over 900 million individuals using the Internet.

NPCI and payment infrastructure providers: Increase UPI AutoPay transaction limits for annual life and health insurance premium payments to accommodate the high volume of transactions in this segment (current limits are ₹15,000 or \$180 per transaction).

10. Conclusion

The purpose of this study was to evaluate the impact of InsurTech and electronic payment technologies on the evolution of the insurance market in India. The data show that InsurTech adoption results in higher customer satisfaction levels, while e-payment systems contribute to greater efficiencies in premium collections. Additionally, digitization has allowed for the addressing of the insurance access gaps found in geo-unserved populations; each of these alternative hypotheses were confirmed with results that show a strong level of statistical significance.

The current moment represents an inflection point for India's insurance markets: increasingly young, digitally-savvy population; well-established digital payment networks; and significant uninsured populations represent a unique combination of demand-side readiness and supply-side innovation. When combined, InsurTech and accessible e-payments can move insurance penetration in India upwards from 4.2% to reach the global average and achieve this through an inclusive process that brings communities long-excluded from traditional insurance delivery systems.

To achieve this promise, however, intentional actions are required. The regulatory environment must evolve at the same pace as technological innovation while ensuring consumer protections are prioritized. Investment in digital literacy and financial education must go hand-in-hand with new technology implementations. Additionally, cybersecurity measures must be put in place to protect the personal and financial information of millions of new digitally purchasing insurance customers. Finally, the industry must resist the urge to focus only on profit maximization of the most attractive digital segments and instead integrate a preference for all consumers.

The convergence of InsurTech and electronic payments is an evolution of technology; it is also a socioeconomic necessity for any country to work toward insuring the 1.4 billion people in its

population. This research adds to the increasing body of evidence supporting the proposition that Technology will be an effective tool for financial inclusion and stability when developed with thoughtfulness and exhibited fairly.

References

- Bain & Company. (2022). Asia-Pacific Insurance Report 2022: Digital transformation and the renewal imperative. Bain & Company Inc.
- Broeders, D., & Prenio, J. (2018). Innovative technology in financial supervision (SupTech): The experience of early users. Financial Stability Institute Insights on Policy Implementation, 9. Bank for International Settlements.
- Eling, M., & Lehmann, M. (2018). The impact of digitalization on the insurance value chain and the insurability of risks. The Geneva Papers on Risk and Insurance—Issues and Practice, 43(3), 359–396. <https://doi.org/10.1057/s41288-017-0073-0>
- Gatteschi, V., Lamberti, F., Demartini, C., Pranteda, C., & Santamaría, V. (2018). Blockchain and smart contracts for insurance: Is the technology mature enough? Future Internet, 10(2), 20. <https://doi.org/10.3390/fi10020020>
- Hasan, M. M., Miah, S. J., & Hossain, M. A. (2021). Artificial intelligence-powered insurance claim processing: Evidence from Asia-Pacific emerging markets. International Journal of Financial Studies, 9(4), 57. <https://doi.org/10.3390/ijfs9040057>
- Insurance Regulatory and Development Authority of India. (2023). Annual Report 2022–23. IRDAI. <https://www.irdai.gov.in>
- Insurance Regulatory and Development Authority of India. (2024). Annual Report 2023–24. IRDAI. <https://www.irdai.gov.in>
- KPMG. (2024). Pulse of Fintech H2 2023: Global analysis of investment in fintech. KPMG International. <https://kpmg.com/xx/en/home/industries/financial-services/pulse-of-fintech.html>
- Kumar, R., & Sharma, P. (2020). Digital payment infrastructure and insurance penetration in India: A district-level analysis. Indian Journal of Finance, 14(8), 23–41. <https://doi.org/10.17010/ijf/2020/v14i8/152744>

Volume - 5

- Naujoks, H., Schwedel, A., Halbherr, M., Fæste, L., Ramaswamy, S., & Menzigian, K. (2019). Insurance in Asia-Pacific: Delight your customers and avoid disruption. Bain & Company Inc.
- National Payments Corporation of India. (2024). UPI Product Statistics. NPCI. <https://www.npci.org.in/what-we-do/upi/upi-ecosystem-statistics>
- Nunnally, J. C. (1978). Psychometric theory (2nd ed.). McGraw-Hill.
- Reserve Bank of India. (2024). Report on currency and finance 2023–24: Digital payments and financial inclusion. Reserve Bank of India. <https://www.rbi.org.in>
- Sood, A., & Gupta, N. (2023). Regulatory sandbox frameworks and InsurTech innovation: A comparative analysis of IRDAI, FCA and MAS approaches. Journal of Insurance Regulation, 42(1), 1–28.
- Tracxn. (2024). InsurTech India: Annual ecosystem report 2024. Tracxn Technologies. <https://tracxn.com/d/ecosystems/insurtech-startups-in-india>