

DIGITAL TRANSFORMATION OF INSURANCE BUSINESS AND THE JOURNEY IN SEARCH OF EXCELLENCE WITH INSURTECH



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Synopsis

The insurance business and digital transformation thereof, particularly the developing ones, is relatively less talked about than fintech in any economy. Thus, InsurTech falls into the 'Also to be done' category. This scenario must change when every aspect of human life and corporations' operating efficiencies are increasingly being impacted by the threatening dimensions of the everchanging elements of VUCAFU and their fearful effects. This paper aims to contribute to the efforts of all to create due sensitivity among all concerned about what InsurTech can help achieve for stakeholders. The paper contains results from studies on perceptible trends in InsurTech and their frameworks, potential new services, added value propositions, etc. The author has also suggested certain strategic imperatives to help insurance entities remain in search of excellence with InsurTech for sustainable prosperity.

Image Source: https://cioafrica.co/8-technology-trends-transforming-the-insurance-industry-today/

Genesis and Evolution of Insurance

ince ancient civilisation, humans mostly remained self-alarmed about imminent dangers. Availability of resources remained a major concern, particularly in anticipation of disasters. However, with the progress of civilisation, the ant philosophy for savings was found insufficient after events of an unprecedented disaster. Men also started sensing the fate of survivors in a family due to the sudden demise of the member(s) securing resources for living.

The concept of insurance, as a structured arrangement for coverage against risks and assurance of life, can be traced back to ancient Indian literature such as Manusmriti (1250 -1000 BCE), Yagnabalka's Dharma Shastra (700 BCE), and Kautilya's Arthashastra (350 - 275 BCE). The Insurance Regulatory and Development Authority of India (IRDAI) website comments that these texts laid the groundwork for 'pooling of resources that could be re-distributed in times of calamities such as fire, floods, epidemics, and famine ', a precursor to modern-day insurance. The spirit of insurance, as a way of life, can also be seen in the stonecarved writings of Hammurapi, the 6th Amorite King of Babylonia (1792-1750 BC).

Moving fast forward, the first-ever coverage of other risks, as per Britannica Money, was ideated after the great fire in London in 1666. Lloyds Insurance Marketing, which used to cover various types of risks in that era, was started in 1688 by Edward Lloyd in a coffee shop. One can learn more about its interesting history and unique processes for conducting insurance business from the website of Britannica Money².

The commercialization of insurance in India began in 1818 with the establishment of the Oriental Life Insurance Company. The British Insurance Act of 1870 opened the doors for other foreign life and other risk insurers to enter India. The Life Insurance Corporate of India (LIC) was established in 1956 by an Ordinance, marking a significant milestone in the country's insurance industry. With its formation, 154 Indian and 16 foreign insurance companies lost their existence and converged into LIC. The IRDAI was set up in April 2000, and in Augst of the same year, insurance industry of India was opened up, paving the way for foreign companies to come in in the post-independence era. Since then, the insurance business has evolved in India and worldwide.

Objective

In the financial world and particularly in digital space, FinTech is the much talked about phenomenon. According to the author, InsurTech is relatively in the 'Also to-bedone' category. In this paper, the author has narrated the reasons why insurance must be taken up much more seriously with a higher degree of intensity to mitigate the sufferings of mankind. This must include proactively minimising the root causes that spring up existing and newer risks with intense impact on humanity.

This paper has attempted to bring out various aspects, areas, and dimensions of digital transformation of the life and general insurance segments and the observed trend. Certain measures to meet the future challenges have been suggested so that the industry can engage with more customers, offering newer and innovative products with InsurTech for remaining in search of excellence with sustainable prosperity.

Computerisation of Insurance Operations in India

The sheer gigantic volume of money, a huge number of customers, and the retail nature of business were the primary drivers of computerisation for insurance businesses worldwide. Particularly, the life insurance segment was the forerunner. Generation of premium notices, issuance of money receipts, claims settlements, customer relationship management, and oversight through MIS were first computerised. As per the research findings of Hebbar et al.³ (2013), "*IT has constantly played a very imperative role in the operations of every insurance company. The fact is that of all the business establishments in the facility sector, of the life insurance companies were the first to adopt Computerization as an incontrovertible part of their operation all over the world..*"

In India, the banking industry was one of the first few organized sectors to adopt computers predominantly for accounting in the face of mass protests against automation. The insurance sector soon followed; here again, the driver was the volume and number of transactions and customers in both sectors. As per the blog of theinsurancesurveyor. com⁴, LIC started computerisation before GIC with mainframe ICL 1900 series computer in 1982. Consultants from NIIT started helping with computerisation of general insurance companies in 1986. Both these types of insurance companies started applications of ICT at the divisional and regional offices. Branch offices were brought under the fold thereafter. The journey thus continued and transcended into the present digital era.

Digital Transformation with InsurTech

With the advent of platform technology riding on Web2, the banking system witnessed net banking in India using personal computers sometime around 1999. Thereafter, with further advancements in ICT with 4G wireless connectivity and smartphones, the world experienced mobile banking. The insurance sector's life assurance and general insurance segments also did not remain behind; and quickly adopted technologies for mobility in operations and settlement of claims. The insurance segments can also now be called branchless service providers from a customer's perspective. Thus, digitalisation of the Insurance sector started.

More than a decade later, another group of players,

i.e., Neo Insurers, became visible in the marketplace, viz., aggregators like Policybazar.com, InsuranceDekho, etc. They help customers with many options before they commit to any insurer/assurer in a perfectly competitive environment to avail of services. Such Neo Insurers started integrating their service platforms with those of the actual life and general insurance companies. However, digital transformation of the insurance business did not remain constricted to customer-centric transformation only. Strategic decision-making after drawing insights from data, risk and performance tracking, robotic process automation to reduce human interventions, etc. became imperative for survival and attaining customers' delight.

Life Insurance service providers, which earlier used to provide only periodical bonuses, periodical cash back, and/ or maturity value, are now permitted to provide investment and quasi-wealth management-related services. investors can now deposit their investible surplus to insurance companies in addition to premiums for investment purposes. The service providers design varieties of schemes like Mutual Funds, remaining within the boundaries and in compliance with the rules and regulations promulgated by the IRDAI.

In their research paper, Roodposhti et al. (2024)⁵ observed that "Digitization also offers new tools and leads to optimization of the insurance industry. The emergence of insurance or insurance technologies provides insurance companies with a number of competitive advantages, such as increased decision-making speed, portfolio expansion opportunities, risk assessment tools", and fraud tracking. The use of digital technologies helps companies increase the efficiency of their business processes". With increased players and relatively lesser scope for innovation, life and general insurance service products have almost become commoditized service products over the years. Gartner concluded from one of their surveys in 2023 that Insurers will change their business priorities from growth in revenue to efficiency in operations and customers' delightful experience.

Imperatives of Insurance Business in the Industry 4.0 Era

Considering the above discussion and in a fiercely competitive market for both life and general insurance, sustainable prosperity, therefore, largely depends on continuous:

- Quantification of social transformation and risk awareness that creates an enabling environment and ignites the insurance mindset of people, which in turn opens space and avenues for more business,
- Studying the changes and transformations in geopolitical, geophysical, and socio-economic environments with AI, ML, and DL enabled predictive models and tools for:

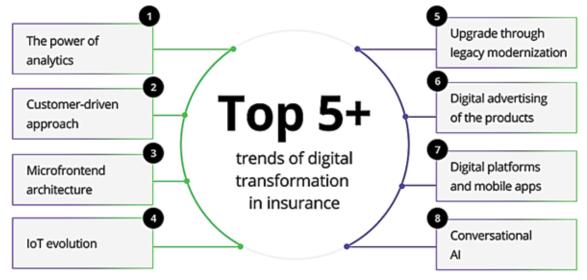
- ▲ Identifying, defining, probability assessment, and defining more nature of and variables for risks that may emerge and to be covered. Probable cases are accident-prone roads, assessing drivers' risky driving habits with the help of AIIoTs and Telematics, marine insurance risks due to terrorism, changes in life expectancy due to new therapies/surgeries, etc.,
- Estimating probabilities for the occurrence of natural disasters, accidents, social unrests in foreseeable futures and accordingly designing insurance products with rightful premiums for covering types of risks with due reference to the probability of occurrence and value to be insured,
- Serving a larger volume of customers with a higher market share, penetrating untapped rural markets, etc.,
- Digitally empowering actuarial estimation by advanced application of AI-based digital tools and models,
- Designing such innovative life insurance schemes, coupled with investment options, and publicise through digital media in such a manner that can squeeze out savings from prospective customers,
- Competitive pricing and faster settlement of claims,
- Framing investment schemes and articulating longterm financial plans befitting different customers' varying needs,
- Management of actual investments in equity and fixed-income securities markets on a day-to-day portfolio management basis, tracking of performance and realised returns, and related treasury operations,
- Minimisation of value destruction by reducing all avoidable costs of operations using digitalised tools and processes, including robotic process automation,
- Transfusion of business strategies, formulated by drawing insights from data with extensive data analytics, into digital transformation plans and tactics for execution to ever remain in search of excellence and sustainable prosperity,
- Upgrading of existing service deliveries with much more user-friendly and omnichannel digitalised solution designs,
- Innovating new business models, cerebral designing of digital solution architecture, and, thus, new revenue modules by digital transformation of business operations, and so on.

Trends in InsurTech

In the present industry 4.0 era, Insurance companies would

not survive in the fiercely competitive marketplace for long if their business is conducted by applying traditional strategies for operations and using legacy ICT tools. They also have to adopt technologies as the core financial sector has done. The businesses for life assurance and general risk insurance. come under the broad group of the BFSI Sector, with the mother being Finance discipline. Therefore, all technologies and tools adopted and applied for digital transformation of insurance businesses could have come under the broad FinTech group. However, to create a distinction, these are called InsurTech.

Waterstreet Company⁶, a technology service provider to insurers, has defined Insurtech as "..... a branch of technology that integrates with or replaces existing insurance solutions." According to them, ".... technology is helping insurers grow in unprecedented ways. Insurtech has exploded into a vast ecosystem of solutions, all competing to deliver next-generation insight for insurers.".



Source: https://euristiq.com/digital-transformation-in-insurance/

euristiq, a digital consulting services company, has expressed the Top 5+ digital transformation trends in the insurance business through the above graphic. Almost all the items are self-explanatory, from the perspective of a customer, brokers, etc., and hence, not being narrated further except the following:

- Microfrontend Architecture: This type of digitalised architectural arrangement operates with the policy that each part of the customer-facing website, operating App, etc., is powered by the micromanagement abilities of the entity's individual functional areas and the operating systems. For example, a person can log into an insurance company's website as a customer, beneficiary, broker, or surveyor for claim verification, etc. They can, thereafter, use different functional tabs, e.g., payment of premium, accumulation of investment value, new schemes launched, maturity value to be released, and so on. The new architecture enables channelisation of the query to the appropriate subfunctional systems.
- IOT evolution: Insurance companies are using the Internet of Things (IoTs) in a big way, particularly for the logistics management sector and running of machinery in manufacturing plants for studying operating and breakdown behavior, etc. They use

GPS-IoT instruments to track the movements of vehicles, ships, and aircraft to levy insurance premiums. The riskier the route, the higher the rate of premium. They use artificially intelligent IoTs (AIIoT) also to study the driving pattern and riskiness of driving when a vehicle is on the move.

 \odot Conversational AI: Most readers must have encountered Conversational AI or Chatbots during net banking and/or mobile banking operations and have received pre-written answers to queries. However, some of their experience may not be purposeful. The same situation applies to an insurance company. Such applications of conversational AIs are now being powered by Generative AI, tools for Voice Recognition, and Natural language-based AI Tools. Application of such enabling technologies can make the Chatbots much more versatile as the GenAI system can scan the entire data and information in the internal repository before forming answers to the non-standard questions of customers and passing it on to the customer.

Emerging Forms of InsurTech

Digital technology-enabled insurance operations processes, i.e., InsureTech-enabled operating systems for both life and general insurance, can be unique and widely different

from the types of legacy systems. Those can achieve the ultimate objectives of digital transformation by creating opportunities for underwriting new and/or additional risks from new/existing customers and/or market segments with newly designed service products. All these, in turn, can generate new revenue earnings and add to profit and profitability. One can explain those InsurTech in the following lines:

- P2P Platform IPaaS: This facility would be like an Insurance Platform as a Service or IPaaS. This platform can enable common people to contribute their duly determined premia into a common fund without the intervention of any insurance company. The premium for each insurance policy will be determined using the pre-fed-in policy and information about the nature of risks and preprogrammed calculation logic. Compensation will be paid based on a predefined methodology if any unfortunate incident happens. The surplus fund can be distributed amongst the participants. The platform can be designed using Blockchain technology to avail of all its benefits.
- \odot Impromptu Insurance or Insurance on Demand: This internet-based online real-time risk coverage facility can be designed to issue an insurance policy on demand. The underlying software will be of robotic process automation or RPA nature. However, risks that will be covered will be of such a nature that does not require any prior assessment/ investigation and are common. The Underwriter will issue the policy based on certain declarations and the commitment of the policy taker to perform certain acts in the specified manner. Cases in point are travel insurance, goods in transit insurance, etc. However, if a predefined unfortunate event happens, the compensation claim shall be paid only if it is established that the declarations were correct and commitments were fulfilled.
- Parametric Claim Management: This variety of online insurance policy issuance is based on the conditions that if the pre-defined risk occurs, claims will be settled in a pre-specified manner without any survey of actual losses incurred. For example, claims under policies for risks caused by natural calamities will be settled without any survey. If an earthquake affects the GPS location, the insured earlier declared while covering risks from natural calamities.
- Telematics for Policy Management: Telematics combines two terms: telecommunication and informatics. This branch of InsurTech uses information collected from distant locations using IoTs, AIoTs, RIoTs, etc., and transmits it through telephonic communication systems. For example,

for healthcare insurance, various information about the insured patient related to radiology, sonography, CT scanning, robotic surgery, etc., can be transmitted and uploaded directly into the Insurer's information repository by the diagnostic/surgical instrument that is used by the concerned doctor and clinicians. The collected data forms the basis for deciding policy values, premiums, and cost reimbursements to be done as appropriate.

- Micro Insurance: InsurTech, created for such a nature of insurance policies, aims at managing low-value insurance policies for poor people in underserved areas. Policies can be for life assurance and coverage against health care, agricultural equipment, harvests, etc. Such mass-scale policy management is conducted by agents and brokers in the field with a front-end App via smartphones or tabs. Telematics is also used for such types of InsurTech.
- Platforms for Insurance Broking and Reinsurance: Insurance broking is a global phenomenon where a different group of professional players functions as intermediaries between large corporations and underwriters. They help corporations get competitive rates even from overseas insurers. On the other hand, reinsurers work on behalf of insurance companies to get their underwritten risks reinsured by large global insurers and/or distribute risks involving huge value and volume amongst other insurance companies through syndication. InsurTech can help the players by introducing a global platform where all such players can rally and conduct their business in a secure and transparent manner.

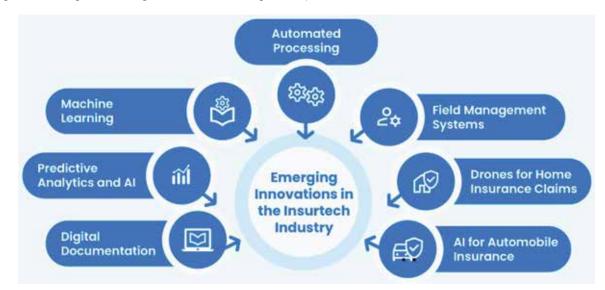
Platforms for all the above insurance-related activities can be created using Blockchain technology to derive all technological benefits of transparency, privacy, safety, security, and immutability. Comprehensively scripted Smart Contracts embedded in the platform will drive the entire process, leaving much scope for human intervention and judgment except for initiating transactions, offers, acceptance, etc.

According to a publication by Leassquared⁷, "*Technology* has shifted the path of almost every industry at an unstoppable pace. The insurance sector is no exception. In 2021, the size of the global insurtech industry reached \$3.85 billion. From 2022 to 2030, it is set to increase at a CAGR of 51.7%." Such projected financial numbers provide an idea about the enormity of adoptions and applications of InsurTech going forward

InsurTech and Added Technological Innovation

The journey with InsurTech does not end with the innovative digital transformation of the transactional platform and seamlessly gathering information using

telematics. The following graphics iconically explain what all innovations are continuously upgrading and upscaling the InsurTech through innovative applications of other digital technologies including from the stable of cognitive technology. The following graphic provides an idea of various innovations that are being ideated and tested. The author would like to narrate a few of them briefly.



Source: https://www.leadsquared.com/industries/insurance/insurtech-insurance-technology/

- Predictive Analytics: Insurance companies use AI-based tools and models for several predictive analytics, e.g., the probability of certain events, like natural calamities, happening that may cause higher impacts resulting in higher instances of claims. One of the objectives is to pre-alert customers and ensure timely actions to minimize impacts and, thus, losses. Predictive analytics also helps in pricing the premium, which depends on the frequency of occurrence of risky events in the past, resulting in claims, and the total number of clients availing of the policies. Moreover, AI-based tools can also help prevent fraudulent claims and the extent of errors in the claimed compensation values.
- Machine Learning and Deep Learning: ML and DL algorithms-based models and tools help insurers in several ways for the acquisition of new/ repeat customers, engagement with them through conversational AI-powered Chatbots, help to determine customers' problems, behaviour, and loyalty linked to the rate of premium, quality of services rendered, rejections of claims, hassles suffered in renewals, claims settlement, etc.
- Like in any other industry, the insurance industry also applies AI and ML-based tools to create guardrails and gateways for proactively detecting and neutralising attacks by cybercriminals. Digitalised cyber forensic tools also help insurance companies detect fraudulent claims.
- Automation: Generally, insurance-related services,

provided through the internet and Smart Phone Apps at the front end, are automated on an endto-end basis with the help of digital technologies like Optical Character Recognition (OCR), Natural Language Processing (NLP) for KYC and document processing. Robotic Process Automation (RPA) is applied for lead management, risks assessment, underwriting, determining premiums, issuing policies. and finally, processing of claims that are not of a complex nature.

- \odot Field Management & Customer Facing Services: Insurance as financial service operations have a fair share of customer-facing operations. The common ones are due diligence of operations, studying the pattern of functioning of assets, people, etc., before underwriting risks, conducting surveillance during the policy period to ensure compliance with terms and conditions, and surveying affected objects on the happening of a damaging event. InsurTech has also developed digital technology-based solutions for this before and after underwriting activities with the help of Drones, Robots, AIoTs, RPA, and digitalized forensic operations powered by AI and ML tools. Drones, with edge computing facilities are also used for surveying agricultural fields to assess the extent of damages caused by natural calamities.
- Generative AI: Millions of transactional data related to customers for risks undertaken/lives assured. premiums received policies handled, claims handled, and so on make the insurance business an ideal case for applying tools and models using Generative AI.

Such a powerful tool can be and should be applied by them on the database of their own domain for very many business purposes inter alia:

- Futuristic assessment of potential risks for carving out innovative insurance products,
- Creating customer-specific policies with tailormade terms and conditions,
- Automating the process of sending quotes to prospective customers for underwriting new risks,
- Rendering automated conversational services to customers during their website visits, issuing

operating instructions, and providing customer support services during the pendency of any policy

Potentials for Future Developments

Every dimension and negative attribute of volatilities, uncertainties, complexities, and ambiguities, added to the fear of unknown and unprecedentedness (VUCAFU), is becoming more fearful daily. The world is increasingly being shrouded with more and more risks due to the abuse of nature, geophysical disbalance, and regional/global unrest emanating from the geo-political and socio-economic factors, and weaponization of digital technologies.

Insurers need to evolve to better serve industry, society, and the planet



Source: https://www2.deloitte.com/us/en/insights/industry/financial-services/financial-services-industry-outlooks/ insurance-industry-outlook.html

At the outset of this paper, the author mentioned that protecting self-interest, security, and safety by remaining self-altered has been ingrained in human beings' mindsets since the dawn of civilization. Perhaps that is why the insurance industry has proliferated even without giving any tangible benefits except for the occurrence of losses, and now InsurTech is also proliferating. However, as the proverb says, even a diamond can further be polished to make it shine more. The insurance industry so long has comforted individuals and corporations by providing assurance of life and insurance against varieties of anticipated losses due to probable risky events. Going forward, it should work towards reducing the probability of the occurrence of risky events.

And that is what Deloitte has mentioned in the above graphic at the top of the list of tasks that the insurers should do "... to better serve the industry, society, and the planet." The narratives quoted in the above graphic are self-explanatory. Therefore, the author has chosen not to elaborate further on those. However, building and sustaining trust and transparency with the help of InsurTech, particularly by adopting blockchain technology, should be at the top of their agenda.

Challenges and Strategic Imperative for Insurtech

Without sitting on judgment and commenting on the success so far of FinTech, the author's research reveals that FinTech is progressing and being accepted at a relatively faster speed than InsurTech. One of the major cases in point is the country-wide acceptance of UPI and mobile banking by common people in every aspect of daily life. However, there is no reason to undermine the importance of InsurTech because of the accelerated rate at which uncertainties and risks are engulfing common people's lives due to the evergrowing dimensions of VUCAFU.

In light of what has been stated in the immediately

previous section, InsurTech must advance at an accelerated rate regarding adoption, innovation, and applications. It should also be the primary responsibility of insurers to sensitize common people and positively influence their mindset about the importance of covering insurable risks and living a relatively more peaceful life. Insurance should also be a way of life like FinTech. Therefore, InsurTech must also work to ensure advancements in these tasks. By these InsurTech will also be able to generate more business with higher profitability.

The author's research suggests that insurance companies must also address the negative/unproductive dimensions of their internal realities besides handling issues related to external stakeholders. They should judiciously adopt both top-down and bottom-up approaches for different aspects of the tasks in hand. The objective should be to innovatively adopt and apply InsurTech for sustainable prosperity. The following could be an illustrative list of actions for handling internal issues:

- Forming a cross-functional team for brainstorming, ideation, and continuing with the journey for innovative applications of digital technologies befitting the entity's specific needs. This will help break silos, change mindsets, and make innovation a part of professional life.
- Provide comfort to the innovation team by judiciously allocating functional areas and defining result indicators, giving them the right to make mistakes and rewards for success.
- Design an appropriate methodology for keeping oversight on the functioning of the innovation team with a pre-defined framework.
- Like the banking industry, identify startups and individual talents for:
 - Conducting hackathons for both technological innovations inter alia for more customer engagement and driving business growth,
 - Collaborating for minimisation of value destruction, new solutions, and product designing, and
 - Entering selective strategic alliance arrangements for working together in the long term.

These will help reduce the cost of innovation, time, and in-house efforts for sustainable prosperity with InsurTech.

Readers might have realised that life and general insurance operations can be automated to a very large extent with the evolution of digital technologies. However, the debate that remains unsettled globally is whether it will ever be possible to completely automate the underwriting function, even with the help of cutting-edge technologies by the largest insurance players. This is because underwriting Digital transformation with InsurTech should not be considered as a 'Lipstick Project' to decorate the company being influenced by the 'Me Too Syndrome'. It should also not be considered a one-time exercise to reach a destination. Every insurance entity must continue to always move ahead in search of excellence with digital transformation and InsurTech for sustainable prosperity and stakeholders' delight.

Conclusion

The author is of the view that much more research is required for the digital transformation of both life and general insurance operations because two major impacting ingredients of insurance businesses are probability and uncertainty of any event happening or not happening. Success in managing any business operations also depends on the ability to deal with uncertainties. However, insurance as a business thrives on majorly on risks and uncertainty. Therefore, technology selection, adoption, and applications will call for a different set of inputs, intelligence, innovation, and wisdom. Researchers have a big role in the future success of InsurTech to provide research-based findings and conclusions to enable technologists and business managers to apply informed judgment in every aspect of their work. The author will consider this brief work to have met success if minds of researchers are even a little ignited by this paper. MA

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