

**IMPLEMENTATION OF TECHNOLOGY IN HEALTH
INSURANCE BUSINESS IN INDIA: A CRITICAL ASSESSMENT**

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Abstract

Technology is being implemented in the insurance industry all over the world. This study looks into existing health insurance business models, various digital technologies used by insurers, and the benefits of using technology for both insurers and customers. Finally, the difficulties that must be overcome in order to achieve successful implementation have been discussed. There are three types of business models emerging: web-aggregators that facilitate the online sale of insurance through websites; digital insurers that are purely online and use AI, blockchain, and data analytics either in-house or in partnership with tech companies to conduct business; and traditional insurers. Third, tech service providers teamed up with established insurers to create tech-based solutions in the insurance industry.

Keywords: Big Data, Artificial Intelligence (AI), InsureTech, Machine Learning, Health Insurance.

I. Introduction

The world of health insurance is changing at a breakneck pace. The cultural shift will place a greater emphasis on people's primary stage well-being than

the business of compensating policyholders financially. Companies will need more data to reach this goal, which can be generated through technology such as Machine Learning, Big Data, the Internet of Things, and Artificial Intelligence. According to Deloitte Insurance Outlook 2022, In order to improve operational efficiency, insurers will invest heavily in artificial intelligence (AI). 74 percent of insurance executives expect to boost their investment in A.I. in 2022. According to a report issued by Global Data in April 2021, AI platform revenues in the insurance industry will grow by 23% to \$3.4 billion between 2019 and 2024. The worldwide insurance market is now estimated to be worth \$5,050.31 billion, with prominent commercial life, property and casualty, and health insurance companies participating. Traditional insurers are focusing on actuarial methodologies, but new insurers are relying on data analytics and machine learning to create tailored plans and increase market penetration. According to Fin-Tech Global, insurers have invested over \$7 billion in Insure-Tech solution providers since 2015 in order to capitalize on the massive influence that new digital models would have on the industry. With a focus on AI-based solutions, 42 percent of enterprises in the car insurance industry, 38 percent in the health insurance industry, and 3% in the development of insurance-specific chatbots. With 39 InsurTechs, the United States dominates the worldwide InsurTech100 list, followed by the United Kingdom with 20 companies. Acko, Aritivatic, Mantra Labs, Pentation Analytics, Policy Bazaar, and Toffee Insurance were among the six Indian startups honored by the global InsurTech100 (mantralabsglobal.com).

II. Literature Review

Yan et al. (2018) explained in the article that in all level of Insurance Value Chain can be technology based. Customer experience in insurance industry is declining gradually. There is a massive change in behavior especially from young with nearly a quarter millennial likely to buy insurance from technology firms. It is explained that technology disruptions can be there in Risk and Data Analytics, Sales, Management, Liability, Fraud & Investigation and Asset Management. Digital Distribution channels can reduce agent services as despite huge commissions traditional insurance agents failed to prove significant value addition. Using Blockchain technology automated virtual claim is possible which can reduce operation costs and better customer satisfaction.

Milne et al., (2019) did case study of 20 organizations where AI is currently utilized for providing insurance service. The business models of 20 insurers include large incumbent multichannel insurers, small new digital insurers online only, E-commerce and tech companies implementing AI in several ways. For Example, Lloyd's of London B2B as a reinsurer adopted AI by developing in their own labs, purchasing solutions from leading expert or investing in AI tech startups. Lemonade Insurance used AI virtual assistant to interact with customers. Again, some B2B insurer like Willis Towers Watson company use machine learning and AI to develop and optimize behavioral models. From the case study as well as focus group interview with industry expert's areas have been revealed where AI driven automation can be implemented i.e., to develop data sources, back-office use, marketing and distribution, consumer sources and insurance and technology ecosystem. It finally summarizes four business models for AI driven automation:

- Focus Strategy and disaggregation: A small part of value chain implemented by insurance company and other part transferred to AI organizations or tech companies.
- Same Model and Value Chain but improved by AI: The implementation of AI technology in-house.
- Beyond the Insurance Value Chain and use of data: Selling hardware and IoT devices to generate more data.
- Tech Companies in the Insurance Business: New incumbents in the insurance business.

Spender et al (2019) discussed use of wearables and the Internet of Things (IoT) in life and health insurance to engage with customers, rewarding healthy behaviors, continuous underwriting. Insurers in US partnering with wearable tech companies to offer discounted physical activity trackers to their customers. In India Aditya Birla Health Insurance is rewarding their customers through discounted premiums if they complete a specific limit of steps using activity tracker or attend gym sessions or wellness program conducted by the company. The Royal London, The Exeter and Vitality Health Insurer launched products aimed at diabetics with ongoing tracking of blood sugar measurements, where in some of the products the premiums are based on customer's measurements. IoT also add meaning, reliability and value to the collected data. This paper also mentioned that insurance companies may face additional competition from non-traditional tech companies like apple, google, amazon having desired customer base and relationships if they want to enter in the health insurance segment.

Osta (2020) identifies the top 10 most intriguing Insurance Tech Startups in India, with the goal of determining if these newcomers can disrupt the market

through innovation. The insurance market may be redefined in terms of distribution/marketing by using web-aggregators, brokers, and digital insurers, according to the findings. Despite the fact that startups have not yet disrupted the established insurance industry, traditional insurers must adapt their business models.

III. Use of Technology in all levels of Insurance Value Chain:

- **Data Analytics:** Natural language processing, deep learning, and machine learning all help to produce risk insights through advanced modelling and analytics (Yan et al., 2018). Using genetic data and wearables, better focused underwriting is possible, and calculating individualized premiums is simple.
- **Customer Engagement:** Selling and distribution can be done online through Policy Aggregators, Multichannel Engagement (making deals with various mobile apps service providers) and purchasing through websites or own apps of the insurance provider.

Insurance Value Chain



- **Management:** Digitalization, Digital Contracts and Digital KYC can make data management efficient and simple.
- **Claim Management:** Block chain Technology provide the platform where publicly known data trigger policy claim on

smart contracts reducing claims processing costs. Fraud detection is easy.

- **Internet of Things (IoT):** Activity trackers can encourage customers to exercise and indulge in a healthy lifestyle with the incentive of reduced premiums when they hit health targets.

IV. Benefits of Technology in Health Insurance Industry

❖ Benefits to Insurers:

1. **Increased Sales:** Health insurance sales have expanded as a result of online distribution channels, and digital insurers also contributed to the total expansion of health insurance plans in India. Health insurance has experienced a 35-40% boost on Policy Bazaar's platform, while digital insurance operator Digit Insurance witnessed a 50 percent increase in average policies sold per day in March'19 compared to January'19 (COVID period) for its comprehensive health insurance products.
2. **Dynamic Pricing Model:** Data driven approach can be used for personalized premiums. This approach also enables risk-assessment which accelerates underwriting. Currently, remote trackers analyze all significant health indicators and provide information about a patient's health. Using this information, insurance companies can predict accidents.
3. **Efficient Process and Value:** Insurers can communicate with clients through digital tools and digital health platforms,

which will increase customer satisfaction and reliance, and data creation will be easier as a result of the contact.

4. Efficient Claims Management: Blockchain technology enables automated compliance by triggering payments when smart contract requirements are met, as well as a better user experience when filling out claims. Blockchain can manage and retain a wide range of personal data in order to detect, prevent, and deter identity theft and financial fraud.

❖ Benefits that consumers can get:

1. Digital Wellness Solution: Apps and wearables with an insurance bent can provide digital healthcare solutions to prevent diseases, manage chronic conditions, and reduce lifestyle risks. Modern users' expectations of such features can be met by new generation insurers.
2. Proper/Better Pricing of policies: By offering customer-driven health insurance solutions and modifying risk-sharing mechanisms utilizing a sharing economy approach, Big Data Analytics, AI, IoT, and Machine Learning can disrupt the market. Claims-free policyholders can get more money back, which is a clear financial incentive for being fair and reducing fraud and claims costs. Digital watches can track heart rate, glucose level, blood pressure, sleep pattern, calories burned and thus provide real-time data.
3. Quick and Hassle-free Claim Settlement: Customers often deals with time consuming paper forms when submitting a claim, also have to speak more with hospitals and insurer

while medical insurance claims. The blockchain enables healthcare providers and insurers to share medical data in a rapid, accurate, and secure manner. Customers will benefit from speedier health insurance claim processing and lower health insurance premiums as a result of this (Shroff,2019).

V. InsureTech Models in INDIA (Health Insurance segment)

Table 1: InsureTech Models in India

<i>Insurance Start-ups</i>	<i>Funding</i>	<i>Founded</i>	<i>Unique Selling Proposition (USP)</i>	<i>Business Models</i>
DIGIT INSURANCE	raised \$100 Mn in funding since inception	2016	Simple documentation process and claim settlement using smartphone self-inspection technology.	Digital Insurer
ACKO GENERAL INSURANCE	\$43 Mn as of 2019	2017	Online purchase at a low cost, personalized pricing using deep-data analytics and easy claim settlement using digital infrastructure.	Digital Insurer
POLICY BAZAR	\$372 Mn	2008	As a web-aggregator customers to make an informed choice.	Web-aggregator

POLICYBOSS	\$10 Mn	2002	Customer support, claim assistance and advisory assistance using brokerage platform.	Web-aggregator
COVERFOX	\$42 Mn	2011	Platform for buy and renew policies on a simple, fast and secure policies and reliable platform for settling claims.	Web-aggregator
INSURANCE DEKHO	\$20 Mn	2019	Insurance broker providing distribution and frictionless journey for the customers, strong tech-focused player. Competitive pricing to direct customers. Bit-sized products is to be developed to enable coverage of individuals at lower costs.	Insurance Broker
ARTIVATIC - AI based Insurance Platform			Use <i>ALFRED</i> -Analytics based, AI led health insurance fraud and risk management platform.	Tech Firm providing Service, Now acquired by web-aggregator
Renew Buy now acquires ARTIVATIC				
Mantra Labs		2009	Use <i>Flow Magic</i> A visual AI platform for	Tech Service Provider -

(AI- first product & solutions firm)

insurers, AI enabled Chatbot, AI driven lead conversion accelerator.

PENTATION ANALYTICS

2015

Company offers Tech Service products and Provider services to insurance carriers and intermediaries backed by analytics and machine learning.

Source: Author's Compilation (Company websites & online articles).

VI. Applications of Various Digital Tools by Indian Insurers

- Bajaj Allianz General insurance is using *customer service chatbot* “BOING” which addresses customer queries 24/7 and can be availed from company website, google assistant and also amazon Alexa. Motor OTS feature on *self-service mobile app* “Caringly Yours” allows customers to self-inspect their claims and claimed are settled within half an hour. It has already introduced a travel insurance product that uses blockchain to settle claims on flight delays automatically.
- Bajaj Allianz life Insurance has mobile apps to hire agents. Through the application it conducts training, exams and licensing on board. It also launched “Mosambee” a sort of virtual branch in a box, providing doorstep services to customers.

- Reliance General Insurance use mobile apps technology and video chat AI enabled technology to process motor and home insurance claim settlement faster.
- Star Health Insurance wellness program incentivize and give rewards for various wellness activities. The insured person can get extra rewards to get a discount in premium. It is mobile app-based name “Star Power” and through Star Health Customer Portal in website.
- Max Life Insurance started digital transformation, updation of contact details of customers, online purchase facilities from website.
- ICICI Lombard General Insurance use AI, Machine Learning, Data Analytics to increase efficiency in insurance business. It has deployed IoT (Internet of Things) sensor based to track marine cargo consignments for corporate customers. Already defused multiple hijacking and theft attempt. IL Take Care App by ICICI Lombard Health Insurance, WhatsApp query and chatbot on website, wellness benefits. CICI Lombard has developed an IoT-based instant health check facility for corporate customers, and is using telematics to identify and segment vehicle users based on driving behavior.
- Max Bupa now Niva Bupa Health Insurance tied up with fintech firm Mobi Kwik to tap into millennials and first-time buyers. In its website “avail discount up to 7.5% when you buy online” is advertised.
- For Care Health Insurance, erstwhile Religare, Mantra Labs, the Bengaluru-based Insurtech firm deployed Hitee, a conversational chatbot to be the first-level customer support for existing and new customers. This led to higher New Business Conversions by a factor

of 10X, and a significant drop in Customer Queries over Voice Support by 20%.

VII. Challenges in Indian Insurance Market

Technology can improve insurance practices though there are constraints in the Indian market to build up the insurance segment fully Tech based.

- **Cost of Technology and Adoption to Corporates:** The cost of implementing new technologies will rise. The cost of specialist equipment, subject matter expertise, analytics/AI/IoT software, and security compliances will rise if in-house technology is set up. Insurers will have to examine the return on investment for incorporating innovative technology.
- **Consumer Adoption:** The ultimate goal is to give seamless customer satisfaction throughout the process, but this will be difficult if customers are not technologically prepared or do not trust the IoT (Internet of Things). Furthermore, consumers will have to pay a greater price for health/fitness monitoring equipment.
- **Data Privacy and Security:** New technology will operate using the database of customers, historical health issues and behavioral patterns of customers. These may pose additional data security threat to consumers.
- **Electronic Health data Repository:** Indian government is trying to create Ayushman Bharat Health Account to create

health record digitally. This is at a nascent stage and will take time to implement properly. Lack of such Database will make the health risk assessment poor.

- **Existing Business Model Vs New Model:** The new model emerged will be usage based rather than the old model providing compensation. Customers those having risky behavior may be penalized and all their activities will be tracked. There may be questions related to rights of privacy and transparency.

VIII. Conclusion

Health insurance is a difficult product to understand. It's a complex service-oriented product, and the crux is getting the service delivered in a usable and timely manner. In India, the health insurance underwriting industry is unprofitable, and the consumer experience with claim settlement is likewise unsatisfactory. In this case, big data may be useful in resolving the issue. The process can be synchronized using technology. The internet distribution of health insurance is expanding client sources, and diverse bite-sized products can reach a large audience. Organizations are attempting to integrate AI-driven technology in order to pique the interest of the millennial and Gen Z generations. The value of Digital Experience is increasing among people as digital platforms become more prominent. Insurance companies are developing self-service portals for rapid access and instant solutions to satisfy their customers' ever-changing financial and protection demands. Big data analytics, block-chain, artificial intelligence, the internet of things, and bot-assistants are being used by Indian insurance companies to improve functions

across the entire insurance value chain, including marketing and distribution, underwriting and risk rating, claims, and customer retention. As of now, this is in a nascent stage in India. Three type of business models in India in the technology Insurance Segment can be identified: Firstly, the web - Aggregators enhancing the customer base for the insurers and providing knowledge and ability to compare products online and easy purchase platform online. Secondly, Digital Insurers are entering into the insurance business with no physical business place, online only market place. Thirdly, the tech service-based companies making deal or partnered with insurers to provide services based on AI, and block-chain.

This research presents the scenario of technology implementation in the health insurance. It will take time to incorporate the technology across all the value chain. If online web aggregators promote the sale, it will benefit/enhance sale of insurance but way of traditional selling through agents. On the other side, digital insurers are new market entrant. The adoption of technology by the traditional insurers will depend on many other factors as well.

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