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CHAPTER6: MACHINE LEARNING

A STUDY ON INNOVATIONS IN INSURANCE INDUSTRY

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ABSTRACT

Insurance has changed little since the first fire insurance companies were established following the Great Fire of London in 1666. The purpose of insurance – to protect people from financial loss – remains but the latest innovations are set to change the way the market works for the benefit of insurers, brokers and customers.

Insurance is a legal agreement between two parties i.e. the insurance company (insurer) and the individual (insured). In this, the insurance company promises to make good the losses of the insured on happening of the insured contingency. The contingency is the event which causes a loss. It can be the death of the policyholder or damage/destruction of the property. It's called a contingency because there's an uncertainty regarding happening of the event. The insured pays a premium in return for the promise made by the insurer.

I. INTRODUCTION

The insurance industry of India consists of 57 insurance companies of which 24 are in life insurance business and 33 are non-life insurers. Among the life insurers, Life Insurance Corporation (LIC) is the sole public sector company. Apart from that, among the non-life insurers there are six public sector insurers. In addition to these, there is sole national re-insurer, namely, General Insurance Corporation of India (GIC Re). Other stakeholders in Indian Insurance market include agents (individual and corporate), brokers, surveyors and third party administrators servicing health insurance claims.

The insurer and the insured get a legal contract for the insurance, which is called the insurance policy. The insurance policy has details about the conditions and circumstances under which the insurance company will pay out the insurance amount to either the insured person or the nominees. Insurance is a way of protecting yourself and your family from a financial loss. Generally, the premium for a big insurance cover is much lesser in terms of money paid. The insurance company takes this risk of providing a high cover for a small premium because very few insured people actually end up claiming the insurance. This is why you get insurance for a big amount at a low price. Any individual or company can seek insurance from an insurance company, but the decision to provide insurance is at the discretion of the insurance company. The insurance company will evaluate the claim application to make a decision. Generally, insurance companies refuse to provide insurance to high-risk applicants.

"Pick a leader who is strong and confident, yet humble. Intelligent, but not sly. A leader who encourages diversity, not racism. One who understands the needs of the farmer, the teacher, the welder, the doctor, and the environmentalist -- not only the banker, the oil tycoon, the weapons developer, or the insurance and pharmaceutical lobbyist."
— Suzy Kassem, Rise Up and Salute the Sun: The Writings of Suzy Kassem

II. INNOVATIONS IN INSURANCE

Insurers are competing for new digital-native customers. To do so, they have to disrupt the status quo with new digital businesses that reinvent conventional insurance offerings. Digital innovation is a key to winning customers and creating new revenue streams. Much of the innovation in the insurance industry in recent years has been about creating new products that are delivered in old ways. Digital is the missing link. By combining the possibility of digital with the desire to innovate, insurers can create new revenue streams—serving new customers in areas that were previously inaccessible.

1. New Models, Personalized Products

The digital economy will make usage-based, on-demand and 'all-in-one' insurance lifestyle products more relevant. Customers will prefer personalized insurance covers instead of the one-size-fits-all products currently available. Today, more than 80 percent of the premiums collected by insurers is lost to distribution costs. Digital models will make intermediaries in the insurance value chain - marked by their excessive dependence on human effort - obsolete.

Flexible coverage options, micro insurance and peer-to-peer insurance will become viable options in the long run. Reinsurers will provide risk capital directly to digital brands, and regulatory frameworks will accommodate shorter value chains.

Lifestyle apps will re-imagine the insurer-insured relationships. Application Programming Interfaces (APIs) will enable the creation of insights-driven offerings as they integrate data from multiple sources. Deeper understanding of customer behaviors will lead to more accurate risk assessments, personalized premiums and value on a sustainable basis for better customer experience and brand loyalty, plus reduced false claims.

2. AI & Automation for Faster Claims

Robotic Process Automation (RPA) and AI will occupy center stage in insurance, driven by newer data channels, better data processing capabilities and advancements in AI algorithms. For example, InsurTech company Lemonade's business model deploys AI and behavioral economics as its core elements. While AI eliminates brokers and paperwork, its behavioral economics capabilities minimize fraud - leading to reduced time, effort and costs.

3. Advanced Analytics & Proactiveness

Premiums will become highly personalized, enabled by new sources of tech-enabled data such as Internet of Things, mobile-enabled InsurTech apps and wearables. With the connected devices market poised to grow strongly in the next five years, Property and Casualty (P&C) insurers will be able to extract real-time and accurate data on the loss exposure of individual consumers. This will help them proactively respond with timely and highly personalized interventions. A Europe-based insurance company's partnership with Panasonic is a good example. Panasonic's sensors provide mobile alerts to both the insurer and its customers for quick and informed mitigation of issues.

Drone and imaging technology will increasingly enable insurers to obtain high-definition images for remote and accurate property estimations and analysis. A few leading U.S. auto insurers deployed drones to assess Hurricane Harvey's damages. An Australian insurance company was able to settle 90 percent of big loss claims within 90 days by deploying drones.

Additionally, insights will be built through data set relationships to create deeper granularity in individual risk profiles and protect insurers from emerging risk exposures. For example, a U.K.-based insurance company leverages predictive analytics to model complex customer behavior, achieve enhanced pricing accuracy and significantly reduce decision time. A U.S. insurer deploys a telematics device to provide drivers real-time feedback to encourage safe-driving. This has helped customers save up to 40 percent on insurance premiums.

4. InsurTech Partnerships

InsurTech firms have been showing significant growth in the areas of auto, home ownership and cyber insurance. Such strong growth will stimulate traditional insurers to either acquire technology capabilities or partner with InsurTech companies. With an increasing demand for innovative products and services from millennials, such collaboration will become a critical imperative.

Overall, it will be a win-win situation — traditional insurers will benefit from faster results in establishing a tech culture and InsurTech companies will get access to larger customer bases, funding and domain expertise. It will give rise to newer models and revenue streams for higher profitability and reduced operational costs. Customer experiences will be enhanced with value-added offerings.

5. Mainstreaming Blockchain

The need for huge volumes of customer data to be processed in real time by different insurance functions calls for easy and secure transfer of data across organizations and their diverse stakeholders. Blockchain technology provides the advantage of secure data management across multiple interfaces and stakeholders without loss of integrity. From identity management and underwriting to claims processing, fraud management and reliable data availability, the technology offers reduced operational costs. Decentralized Autonomous Organizations (DAOs) and smart contracts are additional benefits that blockchain can offer in policy management.

Interestingly, more than 38 insurance and reinsurance companies have embarked on an initiative called the B3i to explore blockchain applications in insurance. The beta version of a blockchain-based insurance solution is expected to be deployed in 2018.

III. BIGGEST NEW INNOVATIONS IN THE INSURANCE INDUSTRY

The main types of innovations that were implemented in insurance activities include:

- Digital platforms – Internet, smartphones;
- Internet of Things – connected and smart devices that enable to collect data;
- Telematics / Telemetry – sensors that allow to receive, transmit and process data through telecommunications without affecting control on the remote objects
- Big Data and Data Analytics – modeling data to support decision-making;
- Comparators and Robo-advisors – online services that provide automated, -algorithm -based product comparison and advice;
- Machine Learning and Artificial Intelligence – modeling of prediction

Big data

Big data, where insurers use more and more sources of information to gain a deeper insight into the risk they're covering, has huge benefits. As well as more accurate underwriting and pricing, a deeper understanding of customers can also drive more personalised product development and marketing.

Blockchain

Flagged up by the Financial Conduct Authority as having the potential to provide innovative solutions in financial services, blockchain is a mutual distributed ledger system. This enables multiple parties to share the same information, without the need for validation from an intermediary. Another key benefit is that it is virtually impossible to hack. Some of the first examples of its application in the sector include providing insurance to sharing economy platforms but it also has the potential to streamline paperwork and deliver efficiencies in the claims process.

Internet of things

With everything from phones to cars and kettles linking to the internet, the insurance sector is set to benefit from this connectivity. As well as enabling the provision of new services, in many areas this will shift the focus from repair to prevention. In the motor space, telematics is already helping insurers understand more about the risks they're covering, while also encouraging better driving habits and improving road safety. Similarly, connected homes, where a building can be monitored with devices such as leak detectors and temperature gauges, will enable the cause of a potential claim to be identified and dealt with before there's any damage. And rather than taking out traditional annual policies, by constantly monitoring usage and risk, cover could become much more fluid too.

Drones

Drones are delivering huge benefits in claims management. In situations such as fires or floods where it's not possible for a claims adjustor to gain immediate access, a drone can be flown over the property to determine the extent of the damage. As well as resulting in improvements in customer service due to the speed at which this service can be delivered, repairs can also get started much sooner.Drones can also be used for risk assessments, either where elements of a property are inaccessible, for instance the roof, or to provide underwriters with a view of the area so they can assess a range of risk factors.

Artificial intelligence

The volume of data available within the insurance sector makes it a prime candidate for artificial intelligence (AI). Already there are examples of insurers using more sophisticated machine learning analytics to support their staff in areas ranging from social media analysis to pricing and claims – and this trend is certain to continue.

IV. CONCLUSION

Innovation as we use it here refers to any combination of activities and technologies that breaks existing performance trade-offs in the attainment of an outcome in a manner that expands the realm of the possible. This definition comes from leading innovation researcher and Deloitte Research Distinguished Fellow Michael Raynor, who said in his book The Innovator's Manifesto: "Trade-offs define the limit of what is possible at a point in time, not what is possible for all time all innovation is about breaking trade-offs." Today, the insurance industry is considered among the most innovative industries in the world [Hocking et al. 2014]. This process is primarily driven by factors, such as the development of technologies that are being implemented at different stages of the provision of insurance services.

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