CHAPTER 04

The Impact of Human-AI Partnership in Underwriting in Reference to Health Insurance

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INTRODUCTION

Health insurance entails an agreement wherein the insured individual receives medical coverage from the insurer in exchange for a premium payment. This coverage typically includes expenses related to hospitalization, surgeries, and day-care operations. Medical costs are either reimbursed or provided as cashless care through health insurance policies. Every individual seeks security for themselves and their families. Historically, when a family member passed away due to illness, other members of the community would step in to financially support the grieving family. This act of generosity helped the family recover financially, providing them with essentials such as food, clothing, and shelter. Over time, as societies evolved and expanded, this communal support became more individualized. However, the concept of insurance gradually emerged as a structured means of providing financial assistance to those in need. Individuals who were unable to contribute financially were supported by their communities, reflecting a sense of collective responsibility [4].

The current technology employed in the Dena health insurance sector has undergone thorough analysis, highlighting how processes like underwriting, preauthorization, and clean settlement are intricately linked and can be streamlined through technological advancements. These advancements aim to provide medical benefits that can financially support ordinary individuals. In the existing insurance business model, there is a growing recognition of the importance of digital transformation. This transformation presents both opportunities and challenges, particularly in terms of leveraging artificial intelligence and cloud computing to revolutionize the insurance industry [1].

In society, good health is imperative for human progress and societal development. However, the high cost of healthcare often renders it inaccessible to the economically disadvantaged in India. According to the Insurance Regulatory and Development Authority (IRDA), limited consumer awareness and procedural complexities pose significant obstacles to expanding healthcare insurance coverage in the country. To address this issue, the Indian government has initiated significant measures to improve healthcare access in both rural and urban areas. Nevertheless, challenges persist in the health insurance domain, including adverse selection, moral hazards, and information gaps. Policy creation, claims settlement, and risk assessment are complex tasks within the health insurance landscape. Despite these challenges, the insurance industry contributes significantly to the economic development of the nation through technological innovation. The healthcare market in India is experiencing rapid growth, fueled by the introduction of new insurance products and the involvement of private enterprises. This growth plays a pivotal role in advancing the overall insurance market in the country [2,3].

RESEARCH OBJECTIVES

1. To examine insurance and health insurance.
2. To explore insurance underwriting.
3. To investigate the influence of AI technology on insurance and insurance underwriting.
4. To explore the advanced technology options for insurance and insurance underwriting.
5. To analyze the collaboration between humans and AI in the underwriting process of health insurance.

RESEARCH METHODOLOGY

The studies were primarily based on secondary data obtained through a systematic search and selection process facilitated by literature review. The search, database selection, and publication choice were conducted by the researchers involved in the study. The study variables encompassed various aspects of the insurance industry in India, including the broader insurance market, the specific domain of health insurance, the historical evolution of insurance and underwriting practices, and approaches to effective underwriting.

Outcome variables under investigation included the utilization of advanced technology in health insurance and insurance underwriting, the future trajectory of insurance and underwriting practices, the effective integration of technology in risk assessment within the insurance sector, initiatives aimed at raising awareness about new technological advancements in underwriting processes, and a comparison between manual underwriting and technology-driven underwriting methods.

Data collection was carried out from diverse sources, including various search engines such as PubMed, Google Scholar, Web of Science, ResearchGate, as well as from insurance regulatory bodies like the Insurance Regulatory and Development Authority (IRDA) and the General Insurance Corporation of India (GIC). Additionally, multiple publications, including articles, journals, and reports from different publishers, were reviewed extensively. The analysis and evaluation of publications were conducted over a period spanning from March to May 2023, focusing on selecting the most recent and relevant publications from the years 2014 to 2023. This comprehensive review process aimed to provide insights into the importance of

technology in insurance, particularly concerning insurance underwriting practices.

RESULTS & DISCUSSION

Manual underwriting offered the personal touch that could attract additional clients, but it was a time-consuming process. Accuracy and speed in underwriting were not as reliable as they would be in an automated system. Clients tended to avoid manual underwriting due to various reasons including extensive form filling, complex fine print, errors and exclusions in the underwriting process, long response times, higher fees, lack of product customization, and predictive services. Even in the most efficient manual underwriting systems, preparing and communicating insurance quotations to clients could take up to 2-3 days. Each application introduced a new set of risk factors that became increasingly difficult to analyze accurately. Manual underwriting suffered from inefficient pricing, low quality, and the risk of procedural errors. The loss ratios of the top and bottom performers varied significantly, indicating susceptibility to errors in creating risk profiles or determining appropriate levels of risk for each individual. For high-value clients, the manual underwriting method took a long time to generate a quote post-application, making it one of the most time and resource-intensive tasks in the insurance client life cycle. Additionally, the manual nature of the task negatively impacted efficiency.

Underwriting expenses ranged from $50 to $130 per hour, multiplied by headcount in certain lines of business, and the underwriting process could take days to weeks. Moreover, scaling with manual underwriting involved significant fixed costs as well as higher operational overheads. Due to the costly

nature of employees, insurers increasingly turned to digitization to improve efficiency and reduce costs. In contrast to algorithmically generated pricing decisions, manually generated insurance quotations were slow. When clients had to choose between the two, they often preferred the option that was faster to process and available 24/7. The tedious and inconvenient process led to customer churn, tarnishing the insurer's reputation in the market.

CONCLUSION

The establishment of innovation hubs and regulatory sandboxes provides a supportive environment for the development of new technologies and breakthroughs, as well as an opportunity for a better understanding of their market impact. However, there is a need for clearer guidelines on the appropriate level of regulation in such environments, as well as how they transition to full regulation, in order to strike a balance between the need for innovation and the requirement for adequate policyholder protection. Market conduct and internal controls are the primary areas where InsurTech would face regulatory scrutiny, and while such regulations are technology-neutral, their practical impact requires further examination. Internal controls ensuring compliance with laws and regulations, as well as fair treatment of consumers and policyholders, will be crucial.

The uncertain impact of big data and algorithms and how regulators will assess them raise complex issues. These complexities have implications for both how regulators organize themselves and how the spirit of regulation is enforced. Firms should be prepared to demonstrate, to the extent feasible, that

their data usage is appropriate and unbiased. RegTech could play a role in ensuring this moving forward.

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