

Transforming Non-Life Insurance: Leveraging Customer Insights and Risk Assessment

Neetu

Research Scholar

Gitam (Deemed To Be University)

Sangareddy District, Telangana - 502329 India

Dr. V. Parvathi

Assistant Professor

Gitam Hyderabad Business School

Gitam (Deemed To Be University)

Sangareddy District, Telangana - 502329 India

Abstract

In the world of uncertainty, Insurance is a promise of intangibles. It is a Contract between an individual seeking financial protection against the unforeseen and the Insurer who tries to comprehend and quantify such events through aggregating the risks. Price of the service is fixed somewhere, on the intersection of this demand and supply. Sustenance of any Insurer depends on his ability to appropriately price the unforeseen for which segmenting the customers according to their risk profile, is the key. This paper elaborates on the sustainability perspective for a Non-Life Insurer by appreciating the need and significance of Risk Profiling and granular segmentation of customers, in the backdrop of basic insurance principles. In the succeeding sections, we will delve deeper into the challenges and opportunities in today's dynamic and challenging market landscape for non-life insurers. These insurers must juggle retaining customers through impeccable customer experiences while striving for profitability. Through the lens of peril, cause of loss, and the mathematical principle of risk pooling, we will also explore how technological breakthroughs are being leveraged to optimize the process.

Keywords: Non-life insurance, Insurer, Risk Profiling, Customer Segmentation, Sustainability, Customer satisfaction, Hyper-personalization, Customer Insights, AI, ML, Incurred Claims

1. Introduction

When it comes to the sustainability of Non-Life Insurers, the significance of Risk Profiling and Customer Segmentation cannot be overstated. These strategies are crucial in understanding and quantifying risks, which is essential for an insurer's longevity in the market. Proper risk profiling allows insurers to accurately assess the probability and impact of potential losses, enabling them to establish appropriate pricing and coverage for their policyholders. In addition, insurers may better satisfy the varied demands and preferences of their clients by segmenting the market according to risk profiles and then tailoring their services to each segment. As a result, the insurer is able to better manage and reduce risks, which in turn increases client satisfaction.

2. Insurance Principles

Insurance is a contract between two parties i.e. an Insured or Insurer. Insured is a party which seeks financial protection arising out of unforeseen due to damage to the owned or controlled assets, and Insurer is the party which enables the protection in exchange for an amount of money which is called premium. Unforeseen events are those events/situations which are unexpected, lying beyond the periphery of control.

Anything which confers value to the owner through its ownership and control is an *Asset*. It is an economic resource which can be either tangible or intangible. Insurance can neither prevent the happening of any unforeseen nor does shield the asset from loss or damage directly, but it provides a protective net against the financial loss arising out of unforeseen. Economic value of an asset can manifest in either Income Generation or through satisfying needs. Asset is a resource but

not all resources are assets for eg. Sunlight, Water which are in abundance but do not have any ownership. One of the tenets of "Risk Transfer" is insurance. The value of any asset might drop tomorrow. Loss, or the possibility of loss or damage, can result from an event's occurrence, while chance refers to the likelihood of an event's occurrence or non-occurrence, which can be expressed mathematically; for example, a 1% chance of a fire accident occurring means that there is a one in one hundred chance that a fire accident may occur. A peril is an event that, when it happens, causes loss; so, the risk is derived from the operation of hazards.

Due to the cause of loss, any condition or set of circumstances which influence the level of risk by escalation in the likelihood of its frequency or severity is a **hazard**. Any comprehensive risk assessment entails evaluating the hazards to which a specific asset is exposed.

Asset	Peril	Hazard
Factory	Fire	Explosive Material left unattended
Car	Car Accident	Careless Driving by driver
Life	Cancer	Excessive smoking

Moral Hazard arises out of the character defects in an individual while the Legal Hazard constitute conditions imposed by the legal process/judicial systems which may heighten the likelihood of an increase in quantum or admissibility of a risk that forces an insurer to cover a risk that it would otherwise deem uninsurable. In this mechanism of Risk Transfer, there is an inevitable need to assess, classify and quantify the risk.

2.1 Mathematical principle of Insurance (Risk Pooling)

Insurance operates on the principle of pooling risks, which involves consolidating the risks of multiple insured individuals or entities who face similar exposures to potential losses caused by perils. By aggregating these risks, insurers are able to assume the financial impact of potential losses. When a multitude of risks is pooled together, the situation becomes more finite and predictable for the insurer. Probability is the primary tool for loss estimation, which in turn is the foundation for premium determination.

(Insurance Institute of India, First Edition 2011)

As an example, let's say there are 10,000 automobiles on the road and each one loses 100 rupees on average. With a 2% likelihood of accidents, the total loss would equal to 20,000 rupees. {(i.e. 2% of (10,000 X Rs.100)}. This probable loss of Rs.20,000/- would be charged from all the 10,000 vehicles in the form of a premium of Rs.2 each. Therefore, the premium is calculated based on the likelihood of harm. If everything went according to plan, the insurer wouldn't have to worry about a thing. In this scenario, the losses sustained by those impacted by the hazards would be fully covered by the premiums paid by the many insured. But if things turned out worse than anticipated and premiums weren't enough to cover claims, the insured would be in a bind. The 'Law of Large Numbers' argues that the likelihood of actual average losses aligning with anticipated or expected average losses increases as the size of the risk pool increases. That is why it is necessary to have a big enough number of comparable exposure units in order to make the losses fairly foreseeable before a risk may be insured. The practicality of the 'Law of Large Numbers' allows for precise forecasting. To accurately predict total projected losses, insurers combine individual risk exposures and pool independent risks. A more consistent and predictable loss profile is produced by a bigger pool of insureds. In addition, insurance companies may provide more consistent and affordable rates when they have a better idea of how much money they will lose in the future. While mirroring society's evolution and increasing complexity, insurance maintains its basic societal purpose of risk sharing while also highlighting the human element, trust, and personal duty of mutual aid. In 2011, Eric Grant Customers are categorised based on their shared traits, allowing for the identification of ideal clients. In order to better meet their clients' demands, life insurance firms can divide their clientele into different groups and then tailor their offerings accordingly. Abdul-Rahman Shuzlina (2021)

3. The trigger

Important for insurance businesses in India, underwriting profit is the sum of premiums generated less all expenditures and losses. It reflects the success of the insurance company's main underwriting activities and is therefore an essential indicator of profitability for Indian insurance businesses. Insurers strive to achieve underwriting profitability by effectively managing risks, controlling expenses, and maintaining pricing discipline. There was a 16.40 percent increase from the previous year in the 2.57 lakh crore in direct premiums underwritten by India's non-life insurance business in 2022–23.

Segment-wise Premium underwritten		
(Rs. In Crore)		
Particulars	2021-22	2022-23
Fire	21,551.03	23,936.12
Marine	4,167.61	5,058.66
Motor	70,433.48	81,280.04
Health (including personal accident)	80,502.27	97,663.50
Others	44,045.82	48,955.94
Total	2,20,700.21	2,56,894.27

The segment wise Incurred Claims Ratio of General, Health and Specialized Insurers for 2021-22 and 2022-23 is as under:-

Segment-wise Incurred claims		
(in percent)		
Particulars	2021-22	2022-23
Fire	60.33	57.99
Marine	85.8	75.13
Motor	81.3	84.48
Health (including personal accident)	105.68	87.27
Others	72.72	73.1
Total	89.08	82.95

The incurred claims ratio (net incurred claims to net earned premium) of the non-life insurance industry was 82.95 per cent during 2022-23 against 89.08 per cent of previous year.

The underwriting losses of non-life insurers increased to 32,797 crore in 2022-23 (Rs.31,810 crore in the previous year). The losses increased by 3.11 percent over the previous year.

(Annual Report IRDAI, 2022-23)

For a Non-Life Insurer, for most of the products, policy period and premium charged are annual and an underwriting profit is a good measure which shows prudence in underwriting practice. The underwriting practice indicates how effectively a risk is identified, assessed, and managed by structuring the coverage through the appropriate application of terms and conditions. An underwriting loss undermines the insurer's profit margin, and repeated occurrences can threaten the insurer's solvency. Ideally, premiums should be sufficient to cover incurred claims, operating expenses, and a profit margin, which all insurers strive for in order to maintain a balanced portfolio. Thus, balancing risk exposure with profitability while providing adequate protection against potential losses is a challenge that needs to be carefully navigated.

4. Rating in Non-Life Insurance

Rating in non-life insurance is the process by which insurers determine the premium charged for specific risks. Drawing from the principle of the Law of Large Numbers, the insurer must aggregate the units that are similarly exposed and classify/segment them. This involves bucketing risks (on the basis of exposure) into homogeneous categories by

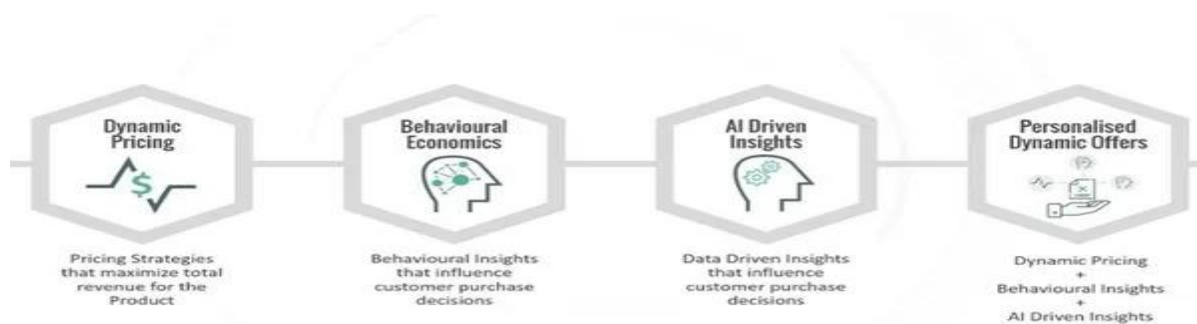
factoring historical data, geographic location, customer behaviour, claim history, loss experience etc. The rating starts with the basic premise of proper segmentation of the customer base depending on the risk profile they offer. The first step, thus, is the process is segmentation of the Customers into different homogenized risk categories based on the exposure. To correctly assess the probability and severity of claims of the segment, in the form of relevant statistics, such as demographic data, historical claims records, psychographic factors, and loss experience at granular level, is analysed. This allows insurers to offer customized pricing and coverage options to meet the diverse needs of the customers. This rating mechanism is further calibrated by underwriting guidelines, regulatory compliance and Market Competition. Insurers continuously refine their pricing strategies to balance risk exposure with profitability and maintain competitiveness in the market.

For determining the exposure, Insurers evaluate various risk factors associated with the types of insurance products being offered. This includes all those factors/characteristics which have a bearing on the probability and severity of loss. For example, in property insurance, factors like location, construction material, occupancy type, and security mechanism in place, are considered. In Personal Accident coverage, the profession of the individual plays a role in how the risk is perceived. Similarly, for car insurance, attributes of the vehicle, such as type, age, and capacity, are taken into account.

For a more nuanced customer experience, Insurers have started giving credence to the positive features of a risk by offering differentiated rates, allowing discounts, or providing add-ons. While the factors that improve risk (such as the presence of sprinkler installations in fire insurance, non-smoking in health insurance, no-claim bonuses in motor insurance, and automatic increases in sum insured in health insurance policies due to no claims) are being rewarded, there is still a long way to go!! The same is elaborated in the form of an example of a health insurance proposal; Consider two individuals, both aged 40, one is a doctor, a non-smoker, and a teetotaler who follows a strict fitness regime with no family history of illness, while the other has a family history of hypertension and diabetes. Can, or rather should, insurance rating recognizes the differences between the two? Although the need for risk homogeneity calls for this, it has seemed impossible hitherto.

The solution lies in obtaining information at a granular level about the proposer from the perspective of the risk they are exposed to. The entire fulcrum of the rating mechanism must undergo a significant change in these times of increasing competition by adopting risk profile-based segmentation with hyper-personalization, which also reflects fair play and parity.

With the help of cutting-edge tech and data-driven insights, insurers will be able to completely revamp the client experience in the next age of hyper-personalization. Technological advancements in data analytics, machine learning, and artificial intelligence (ML/AI) and the proliferation of digital platforms are making this phenomena possible. Precise segmentation and risk profiling are interdependent on the idea of hyper-personalization. Risk Profiling involves assessing and categorizing the risks associated with insuring a particular entity or property facilitated by an effective segmentation. This process helps insurance companies determine the appropriate premium rates, coverage limits, and terms for insurance policies. Customer 360* is the new buzz word.



(avcontentteam, 2024)

Insurance companies cannot possibly know all of its clients on a personal level if they have thousands or tens of thousands. However, insurers may increase income via the development of personalised goods and services by classifying consumers according to personal and financial factors, present and future demands, and long-term ambitions. In order to accurately segment their consumers, insurers must use data from many sources. (According to Filipov, 2022)

4.1 Customer segmentation: From broad categories to Granular Insight

Reading customers' minds is a difficult task. In the digital world, ease of doing business and better customer service are the most important aspects of beating your competitors. The results provide multi-faceted evidence on how and what customer feedback means to insurance industries and how they can leverage that to upscale their business targets as per <https://osmania.irins.org/profile/150992>. (Dash, 2023)

Every customer is unique and presents a distinct proposition. Any information which reflects on the knowledge, attitude and behaviour of the Customer is pivotal. Traditional sources such as policy records, claims history, and demographic profiles are now being complemented by newer data streams, including credit history, spending patterns, driving behavior, social media activity, and telematics to create precise customer profiles. Dividing a client base into subsets defined by shared traits like demographics, behaviour, and psychographics is known as customer segmentation. Traditionally, segmentation in insurance has focused on broad categories like age, income, and geographic location. However, in today's digital era, insurers are increasingly adopting more granular approaches to segmentation. Insurers leverage this information to enable effective communication strategies, competitive and tailored pricing, and customized insurance solutions, all aimed at enhancing customer retention, engagement, and overall satisfaction. Segmenting clients is breaking them down into subsets defined by shared traits like demographics, behaviour, and preferences. It helps companies learn more about their consumers and create more personalised marketing campaigns, which in turn boosts satisfaction and sales. Marketing isn't the only area that benefits from consumer segmentation; risk management is another critical one. According to Mehta (2023), If companies want to reduce losses and maximise profits, they must segment clients according to their risk profile. Businesses may take preventative actions against consumers who are more prone to payment default, claim filing, and product returns by identifying these individuals. One way to mitigate the risk of non-payment from high-risk consumers is to provide them with other payment choices or even ask for an advance deposit. According to Mehta (2023), A company's risk management activities may be better prioritised with the use of customer segmentation. Organisations may improve their resource allocation and customer service by categorising consumers according to their risk level rather than treating them uniformly. This prevents companies from squandering resources on consumers who pose little danger while ignoring those who pose a significant threat. According to Mehta (2023),

Insurance customer segmentation refers to dividing your target audience based on different matrices. Insurance customer segmentation can be divided into four main types:

1. Demographic Data-Based Segmentation—including but not limited to age, sex, ethnicity, family size, education, income, religion, and other factors.
2. Geographical data segmentation—using location as a criterion
3. Personality-Based Segmentation—This method is based on information about customers' interests, lifestyles, values, and other aspects of their personalities.
4. In order to classify various companies, we may use segmentation based on company characteristics.

(Types of Insurance Customer Segmentation, 2024)

4.2 Risk Profiling: The Core of Insurance

The prelude in providing insurance for a specific person/entity is assessment of the degree of risk involved, which is known as Risk Profiling. Traditionally, insurers have used static factors like age, location, and occupation to assess risk. However, modern techniques enable more nuanced risk profiles, incorporating a variety of factors, including behavior, lifestyle, and real-time data. With the advent of technological innovations in the field of Artificial Intelligence, Machine

Learning and Data Analytics, the enormous volumes of data is examined to find the relationships between various factors and risk profiles.

The process of Risk Profiling starts from the *collection of the relevant information* about the insured entity. For a typical fire insurance, details like the type of occupation, age, construction material, the history of previous claims and such other factors are considered. Similarly, a health insurance proposal may warrant evaluation of age, family history and place of residence. Insurers then *identify and evaluate various risks* the insured entity poses due to its peculiarities. These risks may include risks such as fires, theft, natural disasters, liability losses and other potential sources of loss or damage. For a typical car insurance proposal, risks may include accidents, thefts, third-party liability and damages caused by natural disasters. This involves analysing historical data, conducting actuarial analysis using statistical models, and incorporating other relevant information to quantify the probability of losses occurring and estimate the potential financial impact. Based on this assessment, insurers classify risks into different profiles. Classifying properties as high-risk based on their geographical locations prone to natural disasters, is one such instance. The risk profiling is the cornerstone for Insurers for designing their products, fixing rates, terms and conditions of a particular coverage. Profiles with higher risks usually attract higher premiums to compensate for the increased likelihood of claims. Each factor which increases the possibility of occurrence of loss or its volume thereof is quantified for the overall fixation of rate for the risk, whereas the conditions/factors which improve the fabric of the risk are rewarded by way of discounts in premiums eg. Installation of sprinkler installation for Fire Risk or installation of anti-theft appliances in Motor Insurance.

The integration of AI in risk profiling is transforming the accuracy with which insurers can predict losses. When insurers analyse large datasets from many sources, they might find connections and patterns that would not be apparent when using more conventional approaches. More regular changes to risk assessments are also made possible by AI-based risk profiling, so policies always reflect the real dangers that consumers experience. Insurers need to continuously monitor and review their risk profiles to ensure that they are accurate and current. Changes in risk exposure, market conditions, regulatory requirements and other factors may require adjustments to risk profiles and price strategies over time. Further, until recently, insurers primarily assessed risks based on the static physical attributes of the asset, rarely considering the behavior of the risk handler. For example, in fire insurance, ratings have traditionally focused on the type of construction and building occupancy, but what about the owner? What about their attitude, knowledge, and behavior? Diligent behavior transcends all activities, but how can it be accurately measured? The industry is evolving rapidly, and in the future, we may see the emergence of a personalized '**INSURANCE SCORE**' akin to the credit score used in finance, which factors in individual behavior, risk management habits, and even historical claim tendencies. This shift could revolutionize how insurance premiums are determined, making them more personalized and behavior-driven. Seeking such a plethora of information, however, may seem intrusive, and unless insurers can demonstrate fruitful outcomes (which will take time), the number of willing buyers will be limited. This creates a quagmire for insurers, as they need to build an information bank before offering such risk-based personalized insurance solutions, but there are few customers willing to wait !!

4.3 Hyper-Personalization in Insurance

Customizing insurance goods and services to each individual client's unique requirements and preferences, which goes beyond traditional segmentation based on the broad demographic categories, is known as hyper-personalization. Insurers use advanced analytics to understand customer behaviour, preferences, and life stages. This empowers the Insurer to offer '**CAPSULE COVERS**' perfecting to the exact needs and requirements of the customer. Expanding middle class with Increasing awareness and growing sense of entitlement remains the force behind the movement. Additionally, a competitive environment where each company vies to distinguish itself by offering unique propositions, the Regulatory framework encouraging innovation and data availability are also some of the other key drivers

Across Industries, Personalization marketing has real advantages for companies: it can reduce customer acquisition costs by as much as 50 percent, lift revenues by 5 to 15 percent, and increase marketing ROI by 10 to 30 percent. Companies with faster growth rates derive 40 percent more of their revenue from personalization than their slower-growing counterparts. (McKinsey, 2023) In order to keep up with clients' ever-changing expectations, the insurance business has begun to embrace hyper-personalization. Insurers may build customer-resonant customised experiences by using data, adopting AI and ML, effectively segmenting consumers, optimising digital channels, and encouraging proactive

communication. Those who are able to accomplish hyper-personalization in this era of customisation will not only survive but also prosper in the marketplace and establish loyal client bases. The future of hyper-personalization depends on our ability to identify and meet the specific requirements of each consumer. Regarding Mr. K V Dipu's 2020 report, Insurers are using advanced analytics techniques to draw meaning insights to understand customer behaviour, preferences and risk profiles. By using such advanced algorithms and predictive models, Insurers are able to assess the risks more precisely and effectively. The vast amount of data is collected from various sources/platforms like Social Media, Internet of Things (IoT), third party data providers, cross sellers. However, Insurers must comply with the relevant regulatory guidelines and ethical considerations on data privacy in collection, collation, storage and usage of the data. For meaningful insights however, it is pertinent that the data is churned with proficiency, fairness and transparency. The insights to be able to be useful have to be attuned to the dynamics of risk. This proactive approach helps Insurers to have an overall control of the risk which enables them to not only mitigate losses but also fosters a culture of risk reduction by appropriately incentivizing positive risk attributes like allowing discounts for adopting safety measures or for subscription to a health club.

The approach, therefore, seems to be gravitating towards a “customer-centric” model in the perfect parlance of marketing, which begins with understanding the requirements and then devising solutions to offer unique propositions. Covers like “Pay as You Drive,” a type of car insurance where the premium depends on the number of kilometers driven during the policy period, and/or a Motor Floater policy, which covers all owned vehicles of the insured under a single policy, are steps in this direction. Familiarity with and understanding of the customer lead to long-term associations that can also be harnessed for personalized recommendations, cross-selling of other products, and seamless interactions at various points of contact aimed at achieving overall operational efficiency.

5. Conclusion

The non-life insurance industry is at a crossroads, where traditional practices are being reshaped by technological advancements. Risk profiling and customer segmentation are no longer just tools for pricing premiums—they are integral to offering personalized, customer-centric insurance solutions. Hyper-personalization is driving the future of insurance, enabling insurers to cater to individual customer needs while maintaining profitability. As the industry continues to evolve, insurers that successfully harness data, AI, and customer insights will be better positioned to achieve sustainable growth. The ability to segment customers and profile risks at a granular level, coupled with a customer-centric approach, will set the foundation for future success in the competitive non-life insurance market. Effective segmentation helps marketing and sales strategy and tactics to better target and attract consumers, boost sales and profitability, and provide a 360° perspective of customers developed by combining numerous data sources. With a 360-degree view of consumers, marketers may construct categories based on apparently unconnected factors and get novel insights by bringing previously separated customer dimensions and features together. (Khandelwal & Mathias, July 7, 2011)

The sustainability of any insurer hinges on its ability to appropriately price and quantify unforeseen events, requiring a deep understanding and segmentation of its customer base according to their risk profiles. By appreciating the need for and significance of risk profiling and granular segmentation of customers, non-life insurers can ensure their long-term viability in the face of uncertainty. This research paper has attempted to shed light on the fundamental principles that underpin the insurance industry and emphasized the critical role of risk profiling in sustaining non-life insurers.



Source: (avcontentteam, 2024)

An integrated approach of refined customer segmentation for Risk profiling, aimed at achieving the goal of last mile coverage by adopting Hyper-personalization, is the milestone that Insurers have set for themselves. Time will bear witness to the paradigm shift in the Insurance landscape, with the customer at the centre stage.

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