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EDITORIAL

This issue of the journal carries various articles which have won awards for the best papers under the various essay writing competitions conducted by the institute. The papers are on a number of themes related to insurance – life, general, health, micro insurance and pensions. A significant part of the journal deals with developments in digital technology - like artificial intelligence and analytics, their implications for insurance. There is also a special paper which deals with suggested implementation agenda for IRDAI to transform its regulatory framework, so as to serve the India of 2022. This paper has been contributed by two eminent practitioners of the Indian insurance industry.

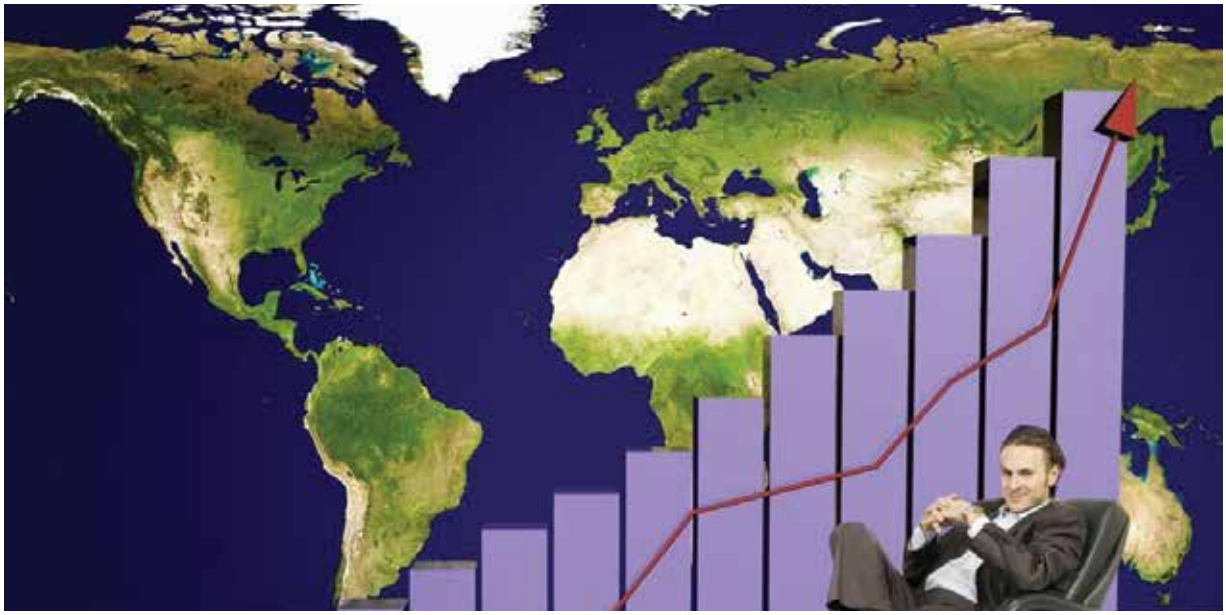
Indeed, the question of how to embrace the future is one that continues to engage the minds of stakeholders and practitioners of life and general insurance. Advances in technology and the potential available in a burgeoning market have opened several possibilities. We hope these papers would lead to reflection and introspection that would enable the industry to move into the next decade with surer steps.

The next issue (January – March 2019) of the journal would be on the theme of 'Reinsurance – The Future'. We invite original and scholarly contributions on this theme which may reach us by 30th November 2018.

Merit Winner

S.K. Desai Memorial Essay Writing Competition

Data Analytics for the Insurance Industry: A Gold Mine



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Abstract

Data science and its myriad applications and methodologies are enabling organizations to harness data resources so as to carry out analytical decision making. The insurance industry is inherently a data driven industry and its data foundations can be traced backed to many centuries. Today, given the advancements in computing power, data analytics can influence all business functions and different lines in the insurance arena and is being acknowledged as a distinct competitive advantage. Data science is also the crux of transformational change, the insurance industry awaits for as it is useful in deploying predictive models for various functional areas in insurance such as risk and underwriting models, having a unified view on the customer and bringing efficiency for different processes across the value chain.

Data analytics can bring a paradigm shift in the outlook and provide a well-organized functioning of insurance companies, helping them to focus on core areas. I therefore discuss the possible uses of data science, especially taking into consideration its dimensions for the insurance business. We begin by making an understanding of the different buzz words surrounding

data science and their subtle differentiation. The paper stresses on the importance, applications and use cases for the insurance industry and is divided in three different sections. Finally, I discuss a practical case study for a business problem by building a predictive model for Agency Retention followed by discussion on applications in Natural Catastrophe and Auto Insurance sector.

Part – I (The Role of Data Science in Insurance Industry)

"It is a capital mistake to theorize before one has data."
- Sherlock Holmes, "A Study in Scarlett",
Arthur Conan Doyle.

Introduction

Whereas the term **Data** is defined as set-of-values of qualitative or quantitative variables, the term **Data Science** encompasses an interdisciplinary field of scientific methods, processes, algorithms and systems to extract knowledge or insights from data in various forms, structured or unstructured. Often data and information are used interchangeably; however, the extent to which a set of data is informative to someone depends on the extent to which it is unexpected by that person[1]. While the concept of data is commonly associated with scientific research, data is collected by a huge range of organizations and institutions, including businesses, governments and non-governmental organizations.

The aim of data science is to build models that are capable of explaining the processes or flows i.e. the exchanges and interaction of elements in and outside of the system. A data model refers to the logical inter-relationships and data flow between different data elements involved in the information world[2]. More importantly the goal of data science is to find patterns for which a data model is constructed and is an abstract representation of elements of data and standardization of how they relate to one another and to properties of the real world.

With new strides in the field of **Artificial Intelligence (AI)** along with its subset **Machine Learning (ML)**, data science is trying to use the data from machine learning for analysis and making predictions about the future. Machine learning focuses on enabling algorithms that develop on their own, whereas **Deep Learning** which is another subset of machine learning is focused on any particular area. Similarly, **Neural Network** is a powerful computational data model that is able to capture and represent complex input/ output relationships. It is also being successfully applied to a broad spectrum of data-intensive applications and in making predictive analysis in areas such as automation, quality control, fraud detection, portfolio management, targeted marketing etc. For the insurance industry, the increasingly automated nature of consumer engagement is making a favorable ground for application of these technologies.

Another data science area that attracts lot of attention is the **Internet of Things (IoT)** which is the network of physical devices, vehicles, home appliances and other components embedded with software, sensors, actuators, and connectivity which enables them to interact by exchanging data which can further be treated with analytics. This data can be of various types such as streaming, spatial, time series and prescriptive data.[3] The IoT

is both challenge and opportunity in terms of insurance coverage for the insurer and also for its application in furthering insurance business.

Given these trends in data science for deriving of insights it is imperative on the insurers to internalize data science and data strategies so as to benefit from the same. In the general as well as life and health insurance business, an insurer who is keen on studying the changing patterns and structure of industry and economy with the advent of the technologies as discussed above, would have an edge in developing insurance solutions for the new economy as well as for deploying it usefully in the new arena of risk management, automation, insight generation and decision making.

Need of Analytics in Insurance

Like in any business, analytics can play a meaningful role when applied to insurance business. Today, data science along with its properties such as machine learning, artificial intelligence and several other innovations are seeing applications into all sorts of industries including manufacturing and services. These developments are crucial to the business of insurance as the whole risk landscape is being transformed with data science becoming the crux of change. Insurers can therefore use data science to know its possible applications in not only improving internal processes and new risk products but can also have deeper surveillance about the transformation brought in by data science by being proactive about it.

Transformative Role of Data Science

Big data is bringing with it the ability to transform industries and the potential to turn traditional, long-standing business models on their head. For businesses, the issue to be addressed is how to make the most of all this data, turning it into actionable insights. Help is at hand in the form of data science. The analysis of patterns in the data allows organisations to build models that create forecasts of what can happen under different scenarios.[4]

Data Science has Real World Applications

Machine learning and artificial intelligence have applications in day to day life. It can help to better our understanding of the challenges of daily life, for example it can provide solutions for logistics issues as simple as which way to commute to work. Data science based applications have also enabled virtual assistants for simplifying routine tasks like answering customer queries. Data science has also been helpful in personalizing one's preference such as targeted marketing for businesses and programmatic advertisement by understanding user behavior. Similarly by understanding user profile, one can help to make appropriate product recommendations. It can also help in managing supply chains that are increasingly becoming complex for different services and products.

- Data analytics provides an edge in the competitive era by solving for complexity and opacity in recognizing the market potential, thereby providing first mover advantage.
- Data analytics is useful in generating leads by identifying specific markets for specific risks, risk pricing, and risk selection.
- Marketing spends can be better allocated and utilized based upon data analytics.
- Insurers can control losses by way of frauds by examining pattern and behavior of the claimants with help of advanced analytics such as artificial intelligence.
- At the intersection of social media, insurers can analyze the buzz surrounding insurance related topics, know customer needs, identify trends and make suitable product/service offering.
- Learnings derived from artificial intelligence is helping to automate many processes of the insurer and developing insurtech capabilities.
- As wearable devices proliferate, data generated from the devices/ sensors will help to manage the insured life in health/life insurance. The policyholders are also expected to be incentivized, who may readily share this kind of data with the insurer.

Data science and its myriad applications and methodologies are enabling organizations to harness data resources so as to carry out analytical decision making. The insurance industry is inherently a data driven industry and its data foundations can be traced backed to many centuries.

Historically, insurers have been data collectors but with the growth of computing power they are now able to harness their data by generating insights from the same and conducting their business more efficiently. Data analytics is also becoming helpful where insurers need to comply with solvency and other regulatory aspects. The diligent aspect of valuation exercise is based on the policy related data. In summation, the biggest potential application for Big Data ranges from aggregating and analyzing large data sets to gain richer insights and to predicting behaviour and needs; detecting frauds or anomalies in financial transactions and to sharpen surveillance of market trends and emerging risks.

Data Foundations of Insurance Industry

England (1661 AD), an obscure haberdasher named John Graunt[5], who was earlier a captain in the army of Charles II, published an analysis on data originally collected 127 years earlier by Thomas Cromwell. The data dealt with age at the time of death in London. Cromwell's database consisted records of births and deaths from the Church of England, however, there was a practical problem associated with the kind of availability of these records, each parish priest had his own way of recording births, deaths, marriages, etc., the database was included in many such ledgers maintained by hundreds of priests. The problem of turning the data into insight was overcome by Graunt's effort who arranged the data into a tabular form and thus paved way for the first life table but also for modern statistics.

Based upon the life table, the early insurers could now make an assessment and price the risk with some degree of accuracy. The insurance industry thus proudly acknowledges the earliest efforts of data collection which provided foundation to the very business. Today, statisticians, researchers and actuaries continue their efforts not only in the periodic revisions and updating of the life table but also employing the insights generated from other forms of data in different functional areas. Various kinds of data are getting deployed into designing and modeling for better and innovative products, risk management and risk pricing.

With growth in computing power and rich features of storage and retrieval the insurers must be keen on organizing their efforts in this direction. The marriage of data with computing power has already unleashed the idea called **'Big-Data'** giving way to a whole new world of informed decision making. Coupled with data foundations and development of modern statistical approaches in the 1750's and the birth of actuarial science in the mid 1800's provided yet stronger models[6] which allowed for price competition and the extension of insurance from property to business venture and others.

The Exponential Rise of Data and Data Science

According to IBM - 2.5 quintillion[7] bytes of data is created every day. Modern businesses are flooded with data and are making reasonable efforts for employing it to take business decisions by transforming the learning's generated through it into actionable insights. However, it is still more challenging and needs scientific approach in succeeding to do so. The availability of handy statistical software can help to great extent; however, it does not undermine the importance of business acumen. The real challenge lies in finding knowledge in the heaps of data that is being created incessantly. **Big data** refers to data sets that are voluminous and complex and that traditional data processing applications are inadequate to deal with them. Big data challenges include capturing data, data storage,

data analysis, search, sharing, transfer, visualization, querying, updating, information privacy and data source.

There are five dimensions[8] to big data known as Volume, Variety, Velocity and the recently added Veracity and Value. Lately, the term **"big data"** tends to refer to the use of predictive analytics, user behavior analytics, or certain other advanced data analytics methods that extract value from data, and seldom to a particular size of data set. There is little doubt that the quantities of data now available are indeed large, but that's not the most relevant characteristic of this new data ecosystem. Analysis of data sets can find new correlations to spot business trends, prevent diseases, combat crime and so on.

Volume: With more and more avenues of customer interaction going digital a lot of data is being generated and includes structured and unstructured data amassing huge information generated by billions of devices connected on the internet.

Velocity: Data science applications are useful in real time situation such as stock trading where important decisions need to be taken at the very instance and flow of information is very high. We see a lot of algorithm based activity being deployed in this area.

Variety: Big data is of different types such as structured and unstructured data like text, sensor data, audio, video, click streams, log files and more. New insights are found when analyzing these types of data together.

Veracity: Big data can be more meaningful when decision makers would rely on the integrity in capturing of such data bytes. Trust plays a bigger role in data science and therefore data integrity is a central dimension.

Value: Data is treated as the new oil, since insights generated from the same are acknowledged to be very valuable. Modern institutions view their data repositories as assets.

Big Data technologies with their important dimensions can enable companies to assess unstructured data in to an actionable degree. Analytics based on data can transform how insurers do business. However, realizing its potential requires complex, large-scale organizational changes. Insurance companies are generating incessant data with every transaction that may relate to data captured at the proposal stage such as medical data and financial data in life or health insurance and details regarding property and assets in general insurance. Similarly in all lines of insurance business, at every stage of the policy i.e. during intermittent stages or during claims payment new data is being generated.

How Data Science is Aiding the Decision Making Process

The pace of development of information technology (IT) has boosted data capturing capabilities of all businesses. A few years back, an insurer who is spread geographically would find it difficult to gather data relating to new business or claims and the frequency was either limited to monthly or quarterly. Today, with the help of improvements in IT and ease of number crunching, the insurer can collect data of different offices in real time and escalate the same to appropriate authorities for decision making.

With the world moving to digital, the pace of data creation is enormous. Data is growing faster than ever before and by the year 2020, about 1.7 megabytes of new information will be created every second for every human being on the planet. Organizations are making huge strides by integrating data in decision making and as such are saving huge amount of money. The following trends in data science and its utilization for businesses are now visible:

- Businesses are increasingly making use of terminals featuring dashboards and advanced visualizations to monitor business. This new kind of reporting has been made possible because of data streaming in live environment

thereby making traditional reporting redundant.

- Managers are being equipped with access to data, for generating reports from the repository, helping them to apply creativity for problem solving.
- Data gathering has taken priority in all sorts of institutions and is now considered as the foundation of informed decision making. Data warehousing is being seen as strategic to business function.
- More and more organizations and industries are becoming data-driven. They are developing capacity and capability to acquire, process, and leverage data to create efficiencies, develop new information products based on query etc. Machine learning is becoming a popular technique for dealing with large volumes of fast-moving data.
- Opening up efforts are being seen by major institutions and governments who are providing access to their data for further use and analysis by researchers. The data includes environment and climatic data, data on demographic variables, data on public policy initiatives and implementation etc.

Insurance Industry's Tryst with Data

As more and more customers engage and interact through the digital medium or search online for insurance products for review and comparison, it is fuelling the volume of data that is being created. Digitalization is happening across the insurance value chain and is also causing data creation. With analytical tools coming to the aid, the insurer is able to deconstruct the results of an activity or campaign in a scientific and logical manner and adjust the scale and level of activity or budgeting more meaningfully. In life, health and general insurance, end to end servicing and sales are now adding new data bases to the insurer's library.

Use of data analytics for insurance is being seen across all lines, with varying degrees of application, delivering successes in some areas, including the use of claims modeling in workers' compensation, catastrophe modeling in property insurance, sophisticated rating algorithms in personal auto, and fraud identification in both property-and-casualty (P&C) and life-insurance claims[9]. Progress has been slower in other lines of business, such as general liability, most specialty lines, and other elements of life insurance.

Going further, insurers can make use of "open data" websites of government and other agencies, which are making available massive amounts of statistics, including health, education, worker-safety, and energy data open to research. Data provided from such trustworthy institutions and resources can be helpful given the quality and integrity in its collection aspect. Some civic institutions are also collecting data strategically for enhancement and betterment of civic and public utilities.

Data analytics provide more avenues for insurers to rethink strategically and ask the right questions:

- Insurers are required to rethink the viability of the current business model and subsets, be it product development, risk pricing, servicing etc and what kind of changes they need to incorporate in their outlook based upon the analytics generated.
- Insurers will also need to study and factor in relevant insights generated through analytics regarding claims behavior and its effects on profitability. Understanding and matching the right proposition to a business problem such as - choice of distribution channel for new market growth etc.
- While doing so it is pertinent to analyze and assess capabilities for data governance and having a framework for data protection. Institutions collecting sensitive customer data must identify themselves as the custodian of such data and must have proper policy framework for its protection and safeguarding of interests of their customers.

Leveraging Data Analytics for the Insurance Industry

Insurance is inherently a data-driven industry. Data Analysis is a process in which raw data is organized and reviewed so that useful information

Insurance is inherently a data-driven industry. Data Analysis is a process in which raw data is organized and reviewed so that useful information can be extracted. The main goal of data analysis is to highlight information and to draw conclusions that support decision makers. Data analysis has multiple facets and approaches that encompass many techniques in different businesses. Data analytics can be a major thrust for an insurer's innovation aspiration, since the players in the insurance sector are persistently required to overcome challenges in developing their business, penetrating new markets or for turning around the existing lines of business.

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Big data projects involve the harvesting and storage of data for their subsequent treatment and transformation to create new usages. Big data is in turn being driven by advances in sensor networks and natural language processing to gather information from a wide universe of sources; cloud technologies to store and retrieve large volumes of information at low cost and on-demand; learning machines and smart algorithms that can continuously adapt and improve on their decision making with every iteration[10].

The core areas where all lines of insurance remain focused are customer acquisition, and retention (marketing and distribution), risk modeling and pricing (actuarial, product development and underwriting) and claims and services management. Data science can help insurance business in all these aspects. With regard to customer acquisition, data can help to derive insights for drawing various strategies for distribution channels. Insurers can also create new data models based on historic data to create new rule engines for automated underwriting up to certain limits without medical checkups in life insurance, and use data visualization for internal controls and decision making. We now discuss the usefulness of data science in the following broad categories.

A) Customer Acquisition and Retention

The customer acquisition and retention are crucial areas where insurers can focus with data analytics capability. New distribution models like online have started disrupting the traditional channels because of deeper levels of customer understanding and engagement. Insurance contracts in life and pension business range for longer terms as compared to general insurance business, however, the industry as a whole acknowledges loyalty, repeat purchase and positive word of mouth that helps them to position as an insurer of choice. The facet of retention not only helps to provide long term relationship but also lessen the strain on finances by improving persistency rates.

- With the help of data analytics, insurers can identify market segments for particular risk products. For e.g. an email campaign for annuity product meant for age group forty plus is meaningless when such solicitations are sent to young or very old people. Predictive analytics can identify groups that are likely to respond positively to a campaign.
- It is time for insurance industry to have unified view on the customer instead of disjointed view. This is

necessary not only from the aspect of sales or service but also from integrating new type of data such as social interactions, preferred modes of communication, new requirements etc vis-à-vis the existing ones. This will also help to properly profiling of customers.

- Know Your Customer (KYC) and Anti-Money Laundering (AML) regulations are also pushing firms towards a deeper customer insight and understanding where data analytics can provide insights.

B) Risk Modeling and Pricing

In the risk management industry it is very crucial to identify, assess, price and underwrite the risks properly so as to avoid strains to insurer's financial position. It is equally required to have a tab through continuous monitoring of outgoes, chiefly claims, and derive learning's via analytics with a view of making improvements in this area.

- Data analytics allows the insurer to take on a new role as guardian offering advice for reducing claims by actively managing the risks that may affect the insured, be it health, habits or by analyzing risky behavior such as rash driving etc. This analysis further shapes the insurers product proposition, underwriting and pricing of risks in a dynamic environment.
- The innovation in modeling of risks has helped to quantify the risk with help of data included in the models that gives accurate information on risks to underwriters on an individual basis and helps to quantify the true price for the risk cover offered.
- Underwriting has become data-driven in line with new models that leverage their insight from multiple data sources, such as social media and connected devices.
- The advent of sharing or gig economy is creating demand for new forms of financial and insurance products.
- New age insurance startups are heavily banking on data analytics and have evolved with new ideas such as peer-to-peer (P2P) insurance that allows the insureds to pool their capital, self-organize and self-administer their own insurance. The core idea of P2P is that a set of like-minded people with mutual interests may group their insurance policies together while at the same time reducing costs (e.g. startups such as #lemonade, #friendsurance etc)

C) Claims Management

Claims settlement creates trust for the insurer; it is also required to identify the factors leading to claims and their genuineness. With aid of data and conceptual modeling one can fairly predict what would be the likely strain on claims if a certain incidence of catastrophic nature were to occur and can draw scenarios regarding the same.

- Data analytics can help to predict the loss reserve with some degree of fairness. When a claim is first reported, it is nearly impossible to predict its size and duration. But accurate loss reserving and claims forecasting is essential, especially in long-tail claims like liability and workers' compensation. Analytics can more accurately calculate loss reserve by comparing a loss with similar claims. Then, whenever the insurance claims data is updated, analytics can reassess the loss

reserve, so as to understand exactly how much money you need on hand to meet future claims[11]. Non-relational data is also quite relevant to claims management, with carriers looking to maintain images, video and text notations right alongside the claims they support (e.g. notations from police inspector or tow truck operator for auto insurance claims).

Building a Modern Insurance Data Warehouse

As an organization builds out its reporting requirements, the data services and operations team should become responsible for the reporting layer. While team members may not focus on defining metrics, they are critical in ensuring that the reports are delivered in a timely manner. Therefore, collaboration between data services and decision sciences is absolutely essential. For example, while a metric may be easy to define on paper, implementing it as part of a regular report may be unrealistic: the database queries required to implement the metric may be too complex to run as frequently as needed[12].

Integration of Data is the Key

The good news is that internal systems and processes already capture the bulk of the data required. Most insurance companies generate tons of nitty-gritty operational data. The bad news is that the data is not integrated. Over the years, data-processing boundaries have encouraged the construction of tall barriers around these isolated islands of data[13].

Responsibilities as data warehouse manager:

- Understand your users by business area, job responsibilities, and computer tolerance.
- Determine the decisions the business users want to make with the help of the data warehouse.
- Identify the "best" users who make effective, high-impact decisions using the data warehouse.
- Find potential new users and make them aware of the data warehouse.
- Choose the most effective, actionable subset of the data to present in the data warehouse, drawn from the vast universe of possible data in your organization.
- Make the user interfaces and applications simple and template-driven, explicitly matching to the users' cognitive processing profiles.
- Make sure the data is accurate and can be trusted, labeling it consistently across the enterprise.
- Continuously monitor the accuracy of the data and the content of the delivered reports.
- Search for new data sources, and continuously adapt the data warehouse to changing data profiles, reporting requirements, and business priorities.

Part - II (Data Analytics for Insurance Industry)

Analytical Decision Making – A Primer on Statistical Techniques

Data science uses statistical and visual techniques for presentation or transformation of data into information and knowledge. Improvements in statistical analysis and techniques help to provide insights on raw data. We take a look at the three most popular statistical techniques mostly driven by advances in computational software that can transform data into knowledge, which are regression, data visualization and predictive modeling.

a) Regression Analysis

One of the major contributors to the statistical theory was Francis Galton and his idea of regression. Regression analysis in its various forms is the primary tool that organizations use for predictive analytics. It works like this in general: An analyst hypothesizes that a set of independent variables (say, gender, income, visits to a website) are statistically correlated with the purchase of a product for a sample of customers. The analyst performs a regression analysis[14] to see just how correlated each variable is; this usually requires some iteration to find the right combination of variables and the best model. Let's say that the analyst succeeds and finds that each variable in the

model is important in explaining the product purchase, and together the variables explain a lot of variation in the product's sales. Using that regression equation, the analyst can then use the regression coefficients—the degree to which each variable affects the purchase behavior—to create a score predicting the likelihood of the purchase.

The following two main categories of regression technique used for data analytics are:

- Linear regression is a linear approach for modeling the relationship between a scalar dependent variable by and one or more explanatory variables (or independent variables) denoted X. The case of one explanatory variable is called simple linear regression. For more than one explanatory variable, the process is called multiple linear regression.
- Logistic regression is a statistical method for analyzing a dataset in which there are one or more independent variables that determine an outcome. The outcome is measured with a dichotomous variable (in which there are only two possible outcomes).

b) Data Visualization

Because of the way the human brain processes information, using charts or graphs to visualize large amounts of complex data is easier than poring over spreadsheets or reports. Data visualization[15] is a quick, easy way to convey concepts in a universal manner – and one can experiment with different scenarios by making slight adjustments. It can also:

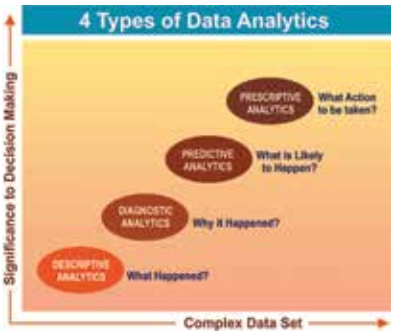
- Identify areas that need attention or improvement.
- Clarify which factors influence customer behavior.
- Helps to understand which products to place where.
- Predict sales volumes.

c) Predictive Modeling

In predictive modelling (also called predictive analytics) we seek to predict the value of a variable of interest (purchase/ no purchase, fraudulent/not fraudulent, malignant/benign, amount of spending, etc.) by using "training" data where the value of this variable is known. Once a statistical model is built with the training data ("trained"), it is then applied to data where the value is unknown. Predictive modeling[16] is also termed "supervised learning". Predictive modelling takes data where a variable of interest (a target variable) is known and develops a model that relates this variable to a series of predictor variables, also called features. In classification, the target variable is categorical ("purchased something" vs. "has not purchased anything"). In prediction, the target variable is continuous ("dollars spent").

What Kind of Data Analysis is Critical in Insurance

New developments in data science offer tremendous opportunity to improve decision-making. Machine learning, pattern recognition, and other predictive analytics tools can constitute a source of competitive advantage for those companies that adopt them early on; but like any new capability, there is an enormous gulf between awareness, intent and early engagement, and achieving significant business impact[17]. There are four types of big data analytics that really aid business[18]:



a) Prescriptive Data Analysis – This type of analysis reveals what actions should be taken. This is the most valuable kind of analysis and usually results in rules and recommendations for next steps.

- Prescriptive pathways helps product design and strategy teams in building calculated plans and at the same time can create scenario based 'what-if analysis' that will strengthen strategy. Prescriptive analytics uses optimization strategies to gain insights into what works best under different circumstances. Prescriptive

models can gaze and plan to better appreciate how changing individual choices of products and services affects the way that people like and use a particular offering[19].

b) Predictive Data Analysis – Is an analysis of likely scenarios of what might happen. The deliverables are usually a predictive forecast.

- Predictive analytics can be a game changer for underwriting in case of life insurance. Given the level of decision accuracy derived from predictive models. It was found that the underwriting decision recommended by predictive analytics matched the decision given by full underwriting. This will only continue to improve going forward with the appropriate mining of the data and the building of applicable predictive models[20].
- In health insurance segment predictive analytics can help insurers and health care providers in gaining new insights in assessing the widespread impact of health ailments today which can lead to better diagnoses and early treatment while reducing costs across the board. It has already started to yield insights the insurers did not previously have access to. The insights are valuable because it allows them to predict segments of the population who are most susceptible to chronic diseases, as well as those who are at the greatest risk of developing them[21].
- In the vehicle insurance line predictive analytics tools can help companies determine the optimal price for a new product or service, and avoid losing money by guessing or testing different pricing options. Furthermore, predictive tools help companies take into account competitor's pricing, current sales data, and even customer driving practices to come up with the optimal offer. For example, an insurance company could optimize its pricing based on buyer behavior, capturing a driver's speed, braking, and acceleration patterns in real time. Using this information, the company could offer its customers personalized pricing and usage-based insurance[22].

c) Diagnostic Data Analysis – A look at past performance to determine why it happened. The result of the analysis is often an analytic dashboard.

- Diagnostic data analysis can help in a number of ways for life insurers and its application can be in different functional areas. It can most suitably be applied to evaluate performance of field and administrative personnel based on KPIs at different levels. It also helps to deconstruct the favorable and unfavorable factors to evaluate objectively. Such insights can be applied to make further adjustments by factoring in new information.
- In health insurance diagnostic analysis can provide new insights to health insurers especially in deconstructing certain trends and peep into causes of health claims by studying various factors affecting insured health such as epidemics causing strain on insurer or contemplating new ways in managing insured life care.

d) Descriptive Data Analysis – Descriptive data analysis shows how to approach the future.

- Descriptive analysis can be applied to a number of functional areas such as sales, marketing, operations, and finance. This helps to understand that performance by diving into historical data and delve into what outcomes such as successes or failures.
- Using large data sets on claims, the general insurance industry can optimize the premium on new contracts and plan future usage, coverage details and charges etc.

New Data Resources for Insurance Industry

We take a look at new kind of data resources that insurers can leverage for better understanding of the customer.

a) Social Media Data

Today, a lot of third party data sets are available which can be useful in different ways especially for a deeper and well informed understanding of the customers.

It is important to acknowledge the new channels for fetching data, one such is social media. Twitter data of several severe tornado events were studied to measure the social media response to catastrophic events. This type of data provides a unique perspective of monitoring and managing catastrophic risk. Social networks can help disseminate warnings and tips to reduce losses and expedite after-event recovery. With fast and wide spread of information, social network data can be used for effective loss control.

Each Twitter data record contains the content of the tweet and accompanying metadata such as user name, user bio, count of friends, count of followers, count of favorites and post time. The relevant Twitter data search for the Rochelle tornado outbreak that happened on April 9, 2015, contains about 95,000 records. Given the diversity of the information in the tweets, traditional data analysis and visualization methods are not very helpful for exploring the data and discovering patterns. Text-mining models and different data visualization methods are needed to summarize and present the information in social network data[23].

b) Credit Data and Uses in Insurance

Credit scoring is the classic example of predictive modeling in the modern sense of "business analytics." Credit scores were initially developed to more accurately and economically underwrite and determine interest rates for home loans. Personal auto and home insurers subsequently began using credit scores to improve their selection and pricing of personal auto and home risks. It is worth noting that one of the more significant analytical innovations in personal property-casualty insurance in recent decades originated outside the actuarial disciplines. Still more recently, U.S. insurers have widely adopted scoring models – often containing commercial credit information – for pricing and underwriting complex and heterogeneous commercial insurance risks.

Second, the use of credit and other scoring models has served as an early example of a widening domain for predictive models in insurance. It is certainly natural for actuaries to employ modern analytical and predictive modeling techniques to arrive at better solutions to traditional actuarial problems such as estimating mortality, setting loss reserves, and establishing classification ratemaking schemes[24].

Marketing Analytics to Improve Efficiency Gains

Analytics can be used for finding better ways of marketing and sales function. One can perform not only predictive analytics by taking into consideration the economic geography for gauging market potential but also for bringing efficiency in distribution channels and monitoring of performance. The following kinds of summaries generated through data can be eyes and ears of managers. A marketing manager can perform following analytical calculations to understand cost related aspects. One can be sure about gaining on efficiency when cost related aspects are contained vis-à-vis deriving more mileage in terms of new business premium or a higher rate of lead conversion.

Data Analytics for Insurance Marketing	
Cost related	**Efficiency Gains by:**
Training cost per intermediary	Identifying loopholes for cost leakages
Acquisition cost per lead	Distribution channel efficiency
Cost per campaign	Identifying what advertisement mix works
New business premium per campaign	What kind of campaigns creates more engagement
New business premiums to marketing cost	Improving better spending
Qualified leads to number of leads	Identifying Reasons for non-conversions
Campaign launch to lead generation	Identifying delays and lags

In today's world, opportunities for efficiency for an insurer not only

stem from strategic planning and marketing but also from harnessing the opportunities thrown open by data analytics. It is therefore pertinent to discuss the important areas in terms of data analytics which are planning and performance budgeting, marketing communications and web analytics for the digital insurer.

Analytics for Marketing Performance Budgeting

Analytics are helpful in drawing both long and short term planning processes. The planning and performance budgeting aspect takes in to consideration the historic performance data and projects the same into future so as to set benchmarks and targets for different distribution channels by understanding potential growth vis-à-vis the economy. This kind of analysis is useful in identifying the strong areas and areas that need improvements. Performance budgeting has time dimension attached to it and is done for identifying and analyzing potential growth areas and harnessing them. Data analytics can be useful in developing the following metrics which underpin the planning and performance budgets for an organization.

- Channel development is one of the core tasks for achieving the set benchmarks of performance. In the insurance sector different insurers are using different channel mix for reaching out to different customer segments. One can identify what kind of customers react positively to what kind of channels by identifying customer sentiment by way of market research or feedback questionnaire or simply studying the retention patterns by identifying repeat sales, renewals or feedbacks.
- Analytics can help an insurer to position as omni-channel marketer, by helping to truly identify the flow of customer information, inquiry, service query etc within the organization. As multichannel approach to sales gains ground in insurance sector, data analytics can be viewed as the source of transformation. For example a customer may prefer to engage with the insurer in many ways and therefore an insurer must have a unified view of the customer. This can only be made possible by analyzing user behavior through data analytics and visualization so as to allocate resources in such manner as preferred by the customer.

Analytics for Marketing Communications

In a world where corporate communications is increasingly being leveraged as a differentiator, it is imperative for insurers to plan and strategize communications that conveys the ethos of the organization. The media world has evolved so much that it is becoming tough for pushing information as was possible with traditional forms of media. In the new age, users are turning as information pullers as they actively subscribe to the content of their liking. Data analytics can help to overcome these disadvantages and also provide inputs for conceiving and strategizing of media planning according to target audience.

- Marketing communications can be supported by intelligent strategy based on what type of audience reacts positively to what kind of content. Based on this data, the communication strategy can be envisaged to have quality content, displays and creatives that create curiosity about the product or brand awareness helping to garner a better mind share of the audience. Data analytics can also be useful in gathering information about what kind of medium the customers and prospects choose to engage with the insurer. They may choose different type of media, for example some users prefer apps, while others may visit the website or social media pages of the insurer for various reasons.
- In the digital communications space, there are data aggregators who collect information on web pages that are most frequently visited by the users, this kind of data may be for mainstream as well as niche websites. Media planning can be done with greater alacrity and effectiveness by understanding metrics such as time spent by the users on the website, the number of unique visitors to the website, bounce

rates etc that are likely to find your right audience and improve the returns on communication spending.

Analytics for Digital Marketing

For an insurer keen on selling and servicing online, there is a whole lot of opportunity to deploy analytics gainfully including web analytics that are helpful to understand and reaching out the IT savvy customer. Web analytics helps the insurer to plan and process selling and servicing of insurance products seamlessly by understanding and improving upon various factors such as user experience of his website, what kind of content must be front loaded on the website for the benefit of the customer and improving the touch points. Web analytics coupled with campaign management can help a digital insurer spread his wing on the internet. This type of analytics is helpful in reaching targeted audience through email or mobile advertising campaigns and converts the leads more effectively. Further, renewal of assurances can be automated by sending reminders through their preferred mode of communication, thereby saving time lags and reinforcing customer engagements.

- Digital marketing analytics lay special emphasis on the flow of visitors to the website, this may including analyzing the role and significance of referral sites such as from where the visitors are originating or departing to from the website and observing factors and narrowing down to the most impacting one such as search of key-words, hashtags etc.
- For a digital insurance marketer it is necessary to focus on activities such as lead generation, conversion and revenue earnings. The popular metrics that present a score card of digital activities can be applied to know the click through rate, cost per click or conversion rates etc as derived from data analytical tools.

Big Data Impact on Insurance Value Chain

Digitalization of the insurance value chain is the heart of transforming the organization to a data driven set up. Data analytics is changing the face of the insurance industry. In the early days big data was the driver of the digital transformation but companies now see a need to come to terms with their vast amounts of dark data. Given that data analytics are improved by each increment of data available to be analyzed, gaining access to the 70% of all data that is unstructured represents a massive challenge as well as opportunity[25]. More data to analyze provides opportunity for improved outputs which means better pricing, reduced risk exposure and better customer insights. Those companies that are best able to transform their unstructured content will be the ones to harness the true power of insurance data analytics and thrive in the new landscape.

- Competitive forces require use of new sources of data such as social media, health data and credit related data.
- Predictive underwriting models can help to review actual decisions with the decisions generated on models through historic data and help to develop new metrics based upon them.
- The preference for new risk exposure through online method has disrupted the traditional channels. With more insight into the customer profiles the distribution channels can propose better product recommendations.
- Digital claims administration aided with data science can help in proper assessment and evidence gathering, thereby averting frauds.

Data Analytics for Insurance Regulation

Insurance regulators can make use of data analytics for effective and efficient surveillance of the industry. Regulators do perform data analytics with a view to appreciate the trends about the industry, check whether the entities are macro prudential in functioning and overall development of the insurance market and are mostly concerned about the following indicators:

i) Monitoring of the depth and competitiveness of domestic insurance markets;

ii) Ratios that may be used to monitor various components of the insurance business;

iii) Common market indicators of insurance company performance and risk; and

iv) Analytical tools used to monitor insurance market risks, including potential systemic risks[26]

With the objective of supporting the insurance industry with sector-level data to enable data-based and scientific decision making including pricing and framing of business strategies the Insurance Information Bureau of India (IIB) was promoted in year 2009 by the insurance regulator IRDA, with the participation of stakeholders of the insurance sector. The Bureau has in its brief period of existence generated insightful reports, both periodic and one-time, for the benefit of the industry. It has also been providing background data to the IRDA for setting the third party motor premium rates. The Bureau provides a bundle of services related to motor insurance to multiple stakeholders such as public, police, transport departments and to insurers through its service package titled V- Seva. IIB handles the Central Index Server which acts as a nodal point between different Insurance Repositories and helps in de-duplication of demat accounts at the stage of creation of a new account27.

Data Governance

The advent of Big Data delivers the cost-effective prospect to improve decision-making in critical development areas such as health care, employment, economic productivity, crime and security, and natural disaster and resource management. The crux of the "Big Data" paradigm is actually not the increasingly large amount of data itself, but its analysis for intelligent decision-making[28].

In the era of big data, insurers are required to adhere to guidelines issued by regulatory authorities regarding data protection. Since the data is in connection with the citizens, the insurance company has special task for protecting the same and prevent it from misuse. At every stage of this process, manipulated data and compliance to personal-data protection legislation are exposed to increased risk. It is required that the insurers have in place risk management framework for issues related to big data and having skilled teams and security measures to guarantee data protection.

Whereas the benefits accruing from data science and data analytics are immense, as they help the insurer to function optimally and efficiently through speedy services, the data of customers and citizens may also gets exposed to certain vulnerabilities. In the past couple of years there have been high profile attacks on the systems of reputed commercial organizations having caused loss of brand equity and harm to reputation of the brand/organization including multiple law suits from aggrieved parties. The insurers therefore need to be vigilant and take adequate precaution for data protection measures.

In regulated industries the government and the regulators can play the role of a catalyst regarding innovations. For data science application a sandbox solution is expected to solve the critical trust issues for all stakeholders. The sandbox mechanism will first appraise whether the innovation has a real solution that could help the industry. Policymakers will have to evaluate safety and efficacy of the proposed solution and understand the benefits and limitations of the same. Currently, technology startups focused on insurance sector are keen on data

science. It is time to have a proper system wherein data science based activities and innovations are properly filtered with appropriate approvals for their innovations.

Data Standards for Insurance Industry

Data standards are particularly important to the insurance industry due to three complicating factors:

- **Wide variation:** Stakeholders include carriers, reinsurers, agents, brokers and third-party software vendors. Each one of these stakeholders has varying functional and technical demands as well as goals and objectives.
- **Exponential data growth:** The speed and magnitude of relevant data has been steadily increasing at a collective rate for the past decade.
- **Industry change:** Insurance faces many macroeconomic, technical and demographic changes, including increasing consumer demands, a rapidly aging workforce, and technology obsolescence.

In India, the Insurance Information Bureau (IIB) provides guidelines for insurance related data and sample formats for its collection. The initiatives of the IIB for the insurance industry are very important as it produces insightful reports on the sector. The benefits of common data pools that provide insight into different areas including claims will help for averting fraud incidents such as loss exaggeration, collusion and fake documents etc helping insurers to use the data pools with analytical methods.

On the global level, ACORD (Association for Cooperative Operations Research and Development) is the standards-setting body for the insurance industry. ACORD facilitates fast, accurate data exchange and efficient workflows through the development of electronic standards, standardized forms, and tools to support their use. Since 1970, ACORD has been an industry leader in identifying ways to help its members make improvements across the insurance value chain. Implementing ACORD Standards improves data quality and flow, increase efficiency, and realize billion-dollar savings to the global insurance industry. Currently, ACORD[29] engages more than 4,000 participating organizations spanning 20 countries, including insurance and reinsurance companies, agents and brokers, software providers, financial services organizations and industry associations. According to ACORD,

Part – III (Data Science and Applications in Insurance Industry)

Case Study: Building a Predictive Model for Insurance Agency Retention

The main aim of business analytics is to gain insight. It heavily aids business planning process. It includes statistical or quantitative analysis, data mining, predictive modeling and multivariate testing.

Predictive analytics uses statistical and machine learning techniques to predict outcomes based on data. It is important to define the goal one wants to achieve through building the model. The steps involved are as discussed below:

a) Defining the Objective

To find a relationship among various factors that are strongly helpful in retention of Agents. The goal is to measure future values of those predictors and inserting them into the mathematical relationship to predict future values of the target variable.

b) Identifying the independent and dependent variables

- Independent variables, X axis – Inputs to Agents for handholding such as training, providing of quality sales material, improvement of soft skills etc (these are values that can be changed or controlled in a given model or equation. They provide the "input" which is modified by the model to change the "output.") this is also known as 'predictor' variable.
- Dependent variables, Y axis – Retention in number of years (This is the value that result from the independent variables) this is also known as 'response' variable.

c) Data gathering and modeling

Regression analysis is used to understand which among the independent variables are related to the dependent variable, and to explore the forms of these

relationships. Insurers have historical data for agents who have completed a threshold number of years to mark them as 'retained' whereas agents below those parameters could be labeled as 'terminated' similarly the record of number of hours training imparted, number of times training imparted, business performance in early years, whether agents are equipped with quality sales material and on how many occasions it was supplied etc needs to be gathered.

d) Selection and transforming of variables

Data relating to agents can have dozens of variables such as age, qualification, sex, area of operation such as rural or urban etc; however, we need to identify only those variables which can be the best candidate variables. Our interest is to find a relationship between the dependent variable and each of your independent variables, and the dependent variable and the independent variables collectively. One must intuitively choose only those variables that have some relationship with the dependent variable and avoid overfeeding of the model. In case we don't find a linear relationship we can move on to run a non linear analysis.

e) Interpreting the multiple linear equation

The estimated multiple linear regression equation is of the following form:

$\acute{y} = b_0 + b_1 + X_1 + b_2X_2 + \ldots + b_px_p$, where $\ddot{Y}$ is the predicted or expected value of the dependent variable (the number of agency years completed in this case), X_1 through X_p are p distinct independent or predictor variables, b_0 is the value of Y when all of the independent variables (X_1 through X_p) are equal to zero, and b_1 through b_p are the estimated regression coefficients.

The analysis generates an equation to describe the statistical relationship between one or more predictor variables and the response variable. After using standard statistical software to fit a regression model, and verifying the fit by checking the residual plots, you'll want to interpret the results. The interpretation of the p-values and coefficients that appear in the output for linear regression analysis will provide insights to the model.

Predictive modeling for agency retention can empower insurance companies to appropriate processes relating to training, equipping with sales material and other handholding measures in accordance to their weights and importance generated by regression analysis. In doing so, they can gauge the important measures that translate into more retention years and reduce terminations, improve engagements with agents and generate substantial growth.

Data Science and Risk Modeling - How Data Science Shaped the Development of an Accurate Natural Catastrophe (Nat-Cat) Model

The North American East Coast has a long history of being a victim of hurricanes causing huge devastation to life and property. However, because of lack of reliable data for assessing the impact of the hurricane, the insurers could not price the risk with fairness and suffered huge losses due to lack of scientific approach in calculating probability of a hurricane hitting the coast and causing devastation. The risks in terms of threat to life had accentuated, the data from the Census Bureau showed that 35.7 million people were seriously threatened by Atlantic hurricanes in 2008, compared with 10.2 million in 1950.

Previously, the 1970s and 80s were unusually free of major storms. At the same time, Americans were cramming themselves and their wealth onto the beach side. The insurance industry had been oblivious to the trends and continued to price catastrophic risk just as it always had and sold as many policies as they could without imagining what kind of devastation a hurricane could cause to the now densely populated and affluent areas. During 1985, Karen Clark30, an insurance company employee, rightly said that insurance companies don't know the amount of money they may suffer in a single storm. She gathered very long-term historical data on hurricanes, the data that wasn't being used, and combined the long-term hurricane

record with new data on property exposure — building-replacement costs by ZIP code and came up with a powerful tool. Her research was backed by some funds from an interested listener and she hired some engineers and scientists to make the hurricane risk model more efficient.

When Hurricane Andrew actually hit on August 16, 1992, she knew only the path of the storm and its intensity, but her model generated a figure of an estimated loss to the tune of $13 billion which she instantly faxed to major insurers in the US, her estimate was then thought to be crazy. A few months later the insurers came up with their figure of losses at $15.5 billion that exceeded all of the insurance premiums ever collected. Eleven insurance companies went bust.

From the Insurer stand point it was found that risk-based pricing could be the fairest and most efficient way to rate insurance risks. Private insurers used catastrophe modeling to quantify the risk with help of Data included in the models that gave accurate information on risks to underwriters on an individual basis and helped them to quantify the true price for the risk covered. The final price being a combination of pure premium for meeting the losses, the cost of capital i.e. return and administrative costs, sufficient in covering the expected losses, including loss adjustment, expenses and provision of capital. This was possible only with the effort of government and private agencies collecting data and mapping of the coastal areas31. It was observed that data collected both remotely by satellites and on the ground proved necessary for information on weather patterns and changes in the climate system.

Data Analytics for the Health Insurance Industry

In an era where the US government seems succumbing to manage the whopping seventeen percent GDP being burnt away to manage the health-care system for its citizens, 'Oscar', a new health insurance start-up currently operating in New York is trying to redefine care in a new way by operating efficiently. What separates Oscar from the rest is that it tries to shape the medical lives of its policyholders by tracking & supporting them through health applications. Oscar also provides online support for most of the health related queries and remedies that seek to avoid direct medical intervention thereby containing costs. In the wake of Obamacare, Oscar's data science based approach can be a big learning from the disruption point of view. New sources of external data, new tools for underwriting risk, and behavior-influencing data monitoring are the key developments that are shaping up these game changer startups.

Health insurance companies are currently developing multi-layer online games that aim at increasing the fitness levels of their clients. Multiplayer online games are also used to track and influence behavior at the same time. Such games are fed with data from insurance claims and medical records, and combine data from the virtual world and the real world. Points can be earned by checking into the gym or ordering a healthy lunch. The goal is to reduce health care cost, and to increase labor

productivity and quality of life[32]. In order to make this idea work, Big Data solutions recognize that people are guided by dissimilar incentives, such as competing, helping out or leading in a social or professional circle of peers.

The collected data allows the incentive structure of the game to adapt to these psychological profiles and individually change peer pressure structures. In order to identify those incentive structures it is essential to collect different kinds of data on personal attributes and behavior, as well as on the network relations among individuals. The tracking of who relates to whom quickly produces vast amounts of data on social network structures, but defines the dynamics of opinion leadership and peer pressure, which are extremely important inputs for behavioral change[33] (e.g. Valente and Saba, 1998).

a new health-risk model by blending best-in-class actuarial data with medical science, demographic trends, and government data. This forward- and backward-looking tool for modeling longevity risk captures data from traditional mortality tables and adds data on medical advances and emerging lifestyle trends such as less smoking, more exercise, and healthier diets. Innovations in analytics modeling will also enable carriers to underwrite many other emerging risks that are underinsured, including those related to cyber security and industry-wide business interruption stemming from natural disasters[34].

Applicability of Data Analytics in Motor Insurance

Many insurers now offer telemetry-based packages, where actual driving information is fed back to their system so that a personalized, highly accurate profile of an individual customer's behavior can be built up. Using predictive modelling as mentioned above, the insurer can work out an accurate assessment of that driver's likelihood to be involved in an accident, or have their car stolen, by comparing their behavioural data with that of thousands of other drivers in their database. This data is sometimes captured and transmitted from a specially installed box fitted to the car or, increasingly, from an app on a driver's smartphone.[35]

Instead of relying only on internal data sources such as loss histories, which was the norm, auto insurers started to incorporate behavior-based credit scores from credit bureaus into their analysis when they became aware of empirical evidence that people who pay their bills on time are also safer drivers. While the use of credit scores in private-auto-insurance underwriting has been a contentious issue for the industry with consumer groups, the addition of behavioral and third-party sources was a significant leap forward from the claims histories, demographics, and physical data that insurers analyzed in the past.[36]

Interconnected technology, such as smart devices in the IoT, can take this a step further. In the simplest usage-based models for auto insurance, customers only need to sign up and download a telematics app onto their smartphones. As long as this app is turned on when a customer is on the road, the insurer knows where, when and how the customer is driving and can calculate risk and premiums accordingly – and in real time. If the coverage does not include theft of the vehicle or own damages, even vehicle make and model are irrelevant information, as the risk depends entirely on the measurable driving behavior of the customer. Similarly, statistical tests like Chi Square can be applied to detect abnormal patterns in cross tabulations of frequency, Student's t- and Analysis of variance (ANOVA) are robust test methods of central tendency for comparing the means of claims paid across various groups.

Going a step further, telematics technology can also alleviate data input in claims situations. Sensors in the phone (in the case of an app) or car can detect crash situations, know the current location and speed, and use this data to infer external information such as weather and traffic conditions. As more cars include telematics technology, cars and thus their insurers can be connected, completely eliminating the need for customer intervention in case of an incident. For this all to happen, of course, customers must be willing to allow their cars to share the data[37] looking at possibilities like assessing damage claims for

auto accidents using image analysis of photographs, or measuring and modulating risk assessments using sensors and telematics.[38]

Conclusion

Data is the key driver behind the transformational change happening in the insurance sector. Big data is a certainly a gold mine for insurers who are keen on creating and assessing new risk models, new kind of services, optimizing the operational models and transforming of the value chain. The key actions for insurers wishing to gain a competitive advantage lies in understanding and appreciating the changes in customer journey brought in by technology, new structure of economy and the connected world. Insurers need to understand the economic opportunity and threats thrown open by data science by decoding what is the potential for new revenue streams, customer segments, and avenues for better cross- and up-selling of existing products. Insurers can also prioritize offerings based on the strength of the organization[39]. A data analytic strategy for the insurer would comprise in developing objectives and allocate resources accordingly. However, the power and influence of big data does not erase the need for vision, business acumen or insight, it only complements it.

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Important Definitions and Abbreviations:

Artificial Intelligence (AI)	Relies on deep learning and natural language processing. Computers are 'trained' to accomplish specific tasks by processing large amounts of data and recognizing patterns in that data.
Algorithm	A process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.
Big Data	Large data sets that may be analysed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions.
Data Science	An interdisciplinary field of scientific methods, processes, algorithms and systems to extract knowledge or insights from data
Data Analytics	Process of examining data sets in order to draw conclusions about the information they contain, increasingly with the aid of specialized systems and software.
Deep Learning	Part of a broader family of machine learning methods based on learning data representations, as opposed to task-specific algorithms.
Insurtech	Technology led companies focused on the Insurance Sector.
IOT	Internet of Things, network of physical devices, vehicles, home appliances and other items embedded with electronics, software and sensors.
Machine learning	Machine learning is the science of getting computers to act without being explicitly programmed.
Neural Networks	Biologically-inspired programming paradigm which enables a computer to learn from observational data.
Sandbox	Testing environment that isolates untested code changes and outright experimentation from the production environment or repository.
Telematics	The branch of information technology which deals with the long-distance transmission of computerized information.
Telemetry	Telemetry is the automatic measurement and wireless transmission of data from remote sources

Merit Winner

D. Subramaniam Award Essay Writing Competition

Utilisation of Float in and Valuation of General Insurance Companies in India

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Abstract

The aim of this discussion is to study the effect of underwriting efficiency and float on long term value creation in the general insurance companies in India. The paper elaborates on the business model, the meaning of float, conditions for profitability of insurance companies, cost of float, and valuation of general insurance companies with the help of float. The paper draws heavily from the writings of Mr. Warren Buffet, Chairman and CEO of Berkshire Hathaway. The annual financial statements of three insurance companies covering a period of nine years were sampled and analysed for determining various parameters tabulated later. The findings indicate that, a general insurance company with the least cost of float in conjunction with a higher yield on investment makes for a better prospect in the long term than otherwise.

Introduction

The capital markets in India have a profound history – the Bombay Stock Exchange was established in 1875, making it the oldest stock exchange in Asia. So does the general insurance industry in India – Indian Mercantile Insurance Ltd. (the first company to transact all classes of general insurance business in India) was established in 1907. In

spite of this, it took nearly 17 years after the establishment of Insurance Regulatory and Development Authority of India (IRDAI) for the first general insurance company to list on the bourses. Of course, this time taken by the general insurers to list on stock exchanges is not without reason. As insurance is a long – gestation business – taking time to break even – listing in the early years of a company would not have been advisable as the stocks of these companies would have kept falling due to adverse reporting – reducing the valuation of the companies. Now that three general insurers/ reinsurer – ICICI Lombard, GIC and New India Assurance – have listed on the stock exchanges and others such as Reliance General Insurance having announced listing, the question of how to go about valuing these companies has become paramount. In the following sections, we will try to understand what makes these companies tick.

Indian General Insurance Industry

The general insurance industry in India currently consists of a plethora of companies – 33 as per IRDAI's website – catering to the insurance needs of the Indian public and industry. The Indian general insurance industry, upto the month of February 2018, has underwritten gross direct premiums of ₹ 1,34,084.84 Crores – a growth of 17.69%. In the same period last year, the gross direct premiums underwritten were ₹ 1,13,926.69 Crores.[1] In an era of GDP growth rate of about 6.5 to 7% for the Indian economy and about 3.5–4% for the world, the growth rate shown by the Indian general insurance industry isn't short of phenomenal. This would make any investor in the general insurance companies jump with joy. After all stock prices follow the company's/ industry's growth, right? But let us hold our celebratory horses and take a look at the global general insurance industry. The global non – life premiums grew by 3.7% in 2016, down from the 4.2% gain in 2015.[2] We would not be much wrong in expecting a similar result in 2017. So, how does the Indian non – life sector defy the trend of general slowdown as seen in the global non – life sector? The answer – we are still a toddler as compared to the global general insurance industry. We are still in our rapid growth phase. The following statistic helps to put things in perspective – share of Indian non - life insurance premium in global non - life insurance premium was small at 0.83 percent.[3]

It is evident from the growth rate of the global general insurance industry that the non - life industry in the advanced economies has grown much slower as compared to the developing economies. This should give an idea about how the Indian non - life industry will behave over the long term. The Indian general insurance industry will need the right combination of conditions to grow and prosper and the investors in the Indian general insurance companies will have to give it one of the most important things an investor can give any company – TIME.

Business Model

The insurance industry basically has one product on offer - PROMISE. Both - life and non - life insurers - sell promises to individuals and industry that their losses will be made good as long as certain conditions/warranties are satisfied. The insurers charge a sort of service charge - Premium - from each insured.

The insurance industry works on the principle of risk pooling. Risk pooling, in simplest of terms, means to gather a large number of individuals/entities exposed to similar risks who are capable of paying the premium and indemnifying the individuals who suffer accidental losses as a result of exposure to those risks. The pooling of these risks – rather the premiums - by the insurers leaves a hefty sum of money at their disposal for a certain time. The basic business of insurers is generating profits by intelligent use of this amount while keeping all their promises.

The distinction between the business of life insurance and general insurance is fairly simple. Whereas the life insurers provide services like life cover, annuities, ULIP, and health covers which mainly focus on the individuals and their finances, the general insurance industry focuses on indemnifying both – individuals as well as industry – for the accidental losses suffered by them. We will ignore the life insurance industry in this discussion and focus on the general insurance industry.

The general insurance industry offers numerous products through its various verticals such as health insurance, marine insurance, fire insurance, aviation insurance, motor insurance, liability insurance, etc. Majority of these insurances provided by general insurers are annual in nature – meaning that the risk is covered for a year – and you have to pay a renewal premium to cover the same risk next year. The insurance company bears the losses suffered by the insured within their respective

> As insurance is a long-gestation business – taking time to break even – listing in the early years of a company would not have been advisable as the stocks of these companies would have kept falling due to adverse reporting-reducing the valuation of the companies.

coverage periods. The general insurers try to generate profits by reducing their incurred losses, other expenses and increasing their returns on the funds held by them.

Profitability of General Insurance Companies

Whether ABC General Ltd. makes profit in a given year depends on various factors like the size of the company, its areas of operation, quality of management, niche created by the company, competitiveness within the industry, public perception, and other general lossmaking conditions.

The size of the company – the strength of its capital – determines the risk taking ability of the company. The more capital a company has, the more business it can underwrite. The areas of a company's operation, determine its overall profitability in a big way. For example, a company solely underwriting marine insurance business may appear more profitable as compared to a company underwriting solely health insurance business in a given year. A company operating in a niche area – generally with less competition – will be more profitable as compared to a company underwriting all classes of business. Competitiveness for underwriting in the industry generally reduces the premiums and in turn makes the companies less profitable. Public perceptions about the company generally relate to the claims experience of the public – the company which has a reputation of paying claims timely gets more business. Likewise, a company with a reputation for delaying claim payments gets less business. Other lossmaking conditions may be epidemics, natural or manmade disasters, recession, etc. Such conditions generally wrap around the entire industry and produce large losses for all stakeholders within the industry.

Quality of management is probably the most important element which determines the profitability of an insurance company. The management takes all decisions pertaining to the company's day to day business and a competent management makes taking these decisions seem easy. Despite being the most important element in the company, judging the quality of management is the toughest job an investor in any company can have. I haven't yet learned how to judge the quality of management and hence will not even try to advise on it. After all a white belt in karate should not teach other white belts as that will only result in one thing - all will forever stay white belts.

The factors enumerated above can be said to be the general factors affecting the profitability of a general insurer. However, when it comes to quantifying the profitability of a general insurance company, there is a single metric that is used by the entire world - combined ratio. Combined ratio is defined as the sum of the incurred claims ratio (claim amount divided by premium), the commission ratio (commission expense divided by premium) and the management expenses ratio (management expenses divided by premium). A combined ratio (derived on the basis of earned premium) of below 100 denotes that the company is profitable in its underwriting business and that of above 100 indicates that the company is making an underwriting loss. This should mean that a company which generates an underwriting profit is the superior company. Fairly simple right?

Well, only partly. Combined ratio is

generally a good yardstick of where a company ranks in profitability. But the final results of a general insurer do not solely depend on its underwriting operations. Apart from the underwriting and claims operations, a minor (only by man - hours invested) but important part of an insurance company's operations are its investment operations. The financial results of general insurers in India are reported by considering the underwriting profit/loss and the investment income on both - the policyholders' funds and the shareholders' funds. Hence, the profitability of an insurer on both fronts - underwriting as well as investment - should be taken into account while investing in these companies.

The following excerpts from various annual letters written by Warren Buffet to the shareholders of Berkshire Hathaway will help shed light on what determines the profitability of insurers.

The 1977 annual letter explains how the insurance business is different from traditional profitable businesses: "It is not difficult to be licensed, and rates are an open book. There are no important advantages from trademarks, patents, location, corporate longevity, raw material sources, etc., and very little consumer differentiation to produce insulation from competition."

The 1982 annual letter explains the caution needed while gauging profitability of an insurer: "In a given year, it is possible for an insurer to show almost any profit number it wishes, particularly if it (1) writes "long - tail" business (coverage where current costs can be only estimated, because claim payments are long delayed), (2) has been adequately reserved in the past, or (3) is growing very rapidly."

The 1987 annual letter explains that biggest is not always the best: "market share is not an important determinant of profitability: In this business, in contrast to the newspaper or grocery businesses, the economic rule is not survival of the fattest."

The 1989 annual letter explains a necessary condition for profitability: "Insurance profitability will improve only when virtually all insurers are turning away (bad) business despite higher prices."

Any prospective investor in insurance companies should pay heed to these points and understand their importance before investing in them.

Float

In the movie Other People's Money, Danny DeVito said, "I love money more than the things it can buy ... but what I love more than money is other people's money." In finance float generated by any company is the funds it holds but does not own. So float is other people's money held by the company.

Float can be generated in any business if the business conditions allow it. But it is necessarily created in the insurance business because of the general mechanism and practice of insurance operations. Warren Buffet has aptly described the reason for creation of float in insurance in his 1994 annual letter to the shareholders of Berkshire Hathaway. He says – "In an insurance operation, float arises because most policies require that premiums be prepaid and, more importantly, because it usually takes time for an insurer to hear about and resolve loss claims".

When it comes to Indian general insurers, the proper nomenclature of float as given by Insurance Regulatory and Development Authority of India (Investment) Regulations, 2016 is 'Policyholders' Funds'. The Authority has defined policyholders' funds in Schedule II of the above regulations as follows:

Policyholders funds shall be the sum of (1) Estimated liability for Outstanding Claims including Incurred but not Reported (IBNR) & Incurred but not Enough Reported (IBNER) (2) Unexpired Risk Reserve (URR) (3) Catastrophe Reserve (4) Premium Deficiency (5) Other liabilities net of Other Assets

Note: Other Liabilities in point (5) above, comprise of (i) Premium received in advance (ii) Unallocated premium (iii) Balance due to other Insurance Companies (iv) Due to other members of Third Party Pool (IMTPIP), if applicable (v) Sundry creditors (due to Policyholders).

Other Assets in point (5) above comprise of (i) Outstanding premium (ii) Due from other entities carrying on Insurance business including Re - insurers (iii) Balance with terrorism pool (if applicable) (iv) Balance with Motor Third Party Pool if any (if applicable)

All these liabilities and reserves comprising the policyholders' funds are determined by the appointed actuary of the company and are generally reported in the annual reports of insurers under a head such as 'Capital and Funds' or 'Shareholders' and Policyholders' Funds'.

A detailed account of IBNR, IBNER, URR and other liabilities and reserves mentioned above is beyond the scope

of this discussion. Their values given in the annual reports of the insurers should be fairly accurate since they are certified by the appointed actuaries and to doubt their calculations, you will certainly need to get a degree in actuarial science and that by no means is a joke.

From the foregoing discussion, any sharp eyed reader will conclude that float is something the insurance company owes to someone else - the policyholders – and will ask "how can anything that is owed to someone else be good for you?" The important thing is not that the insurers owe this amount to the policyholders but that they get to hold this amount for a time and can use this amount to generate extra income by investing them as per regulations. Consider this: A owes B ₹100 but due to some reason this amount is to be paid after a year. Within that year A - being smart – invests that ₹100 and earns a 15% return. A has earned this return without borrowing from anyone else, so has no further borrowing costs. His actual return from this transaction considering taxes and other expenses of 20% comes out to be ₹12. Not bad for anyone. But what if A loses money on the investment within the year? Well, this can happen as the investment scenario in the market can give short term negative returns. It helps that A already has deep pockets and can afford to hold on to his investment while making good what he owed B on time. But in the long term, if A has sound investment policy, his returns are bound to be positive.

Cost of Funds

When any individual or an entity borrows funds they have to pay an interest on such borrowed funds to the lender as per the terms of lending agreement. The interest so paid is referred to as the 'cost of funds' for the borrower. In order to be profitable, the borrower needs to generate a return on these funds that will sufficiently be higher than the operational expenses so that he can pay the interest and generate a modest profit.

A company just starting in the insurance business may need to borrow funds in order to have sufficient capital to set up the business. But the established insurers we currently have in the Indian market generally don't need to borrow funds for their operations. All an insurer needs to underwrite risks is enough capital and a willing underwriting manager.

Does it mean that established general insurers have no costs attached to the funds they hold? Do they get these funds for free? An American rock band named Cage the Elephant has provided the best possible answer to this question in their song 'Ain't No Rest for the Wicked'. The verse goes thus:

Oh there ain't no rest for the wicked

Money don't grow on trees

I got bills to pay, I got mouths to feed

There ain't nothing in this world for free

So what is the cost that a general insurer pays for holding float? It depends on whether the insurer makes an underwriting loss or an underwriting profit. If the insurer makes an underwriting loss, this underwriting loss is the cost that the insurer pays in order to hold the float. Conversely, if it makes an underwriting profit, there is no cost. Rather, the insurer has been paid to hold the float. Well, what do you know! There are some things in life (rather non - life) for free after all!

Underwriting Profits

The natural conclusion that follows from the above discussion is that as long as an insurer makes consistent underwriting profits, it is a great asset to hold and if you can find such a company, don't let go of it even if it makes an occasional underwriting loss. But the very nature of the insurance business makes achieving a consistent underwriting profit a difficult task for the companies. Typically, the premiums charged by an insurer do not fully cover the losses incurred and this leaves it running an underwriting loss. This fact is supported by the following table[4] showing combined ratios of the Indian general insurance industry over the years.

	Private Multi Product Insurers	Public Multi Product Insurers	Total Multi Product
2007	95.5	118.1	112.7
2008	103.4	123.5	117.3
2009	111.2	126.1	120.9
2010	112.4	124.3	120.1
2011	117.7	133.6	127.8
2012	116.4	119.9	118.6
2013	106.4	115.6	112.0
2014	106.1	113.6	110.6
2015	108.3	116.7	113.4
2016	110.7	123.3	118.4
2017	107.1	131.5	121.7

The combined ratios of the general insurance industry indicated above underscore the importance of the investment operations of the industry. Considering that each year the general insurance industry has an equivalent amount of Assets Under

Management (AUM) as the premiums earned by it, the industry would have to produce returns of 10.6% to 27.8% in respective years just to break even. Producing returns of 20% or more on investments year on year is no easy task for the best of investors, let alone the investment departments in the general insurance companies.

Investment of Funds by General Insurers

As per section 13.A. of the IRDAI Investment Regulations 2016, Indian general insurers are required to constitute an investment committee. The decisions taken by the Investment Committee are recorded and are open to inspection by the officers of the Authority. As per section 13.B.1, the investment committee is required to formulate a board approved investment policy. While forming the investment policy, the board, as per section 13.B.3, is required to ensure adequate return on policyholders' and shareholders' funds consistent with the protection, safety, and liquidity of such funds. The funds of the insurer are invested in accordance with the limits specified for various categories of investments in section 8 of the Investment Regulations. According to this section, general insurers can invest in Central Government Securities, State Government Securities or Other Approved Securities, Approved Investments, and the Housing and Infrastructure sector.

The total investible funds of the general insurers comprise of the Policyholders' Funds and the Shareholders' Funds. A discussion on Policyholders' funds has been undertaken in the section on Float above. A brief discussion about the shareholders' funds is necessary here. The shareholders' funds of a general insurer comprise of "Share Capital plus all Reserves and Surplus (except Revaluation Reserve and fair value change account) as at the Balance Sheet date, represented by investments of funds held in business beyond solvency margin".[5] The total shareholders' funds of a general insurer can also be usually found under a head such as 'Capital and Funds' or 'Shareholders' and Policyholders' Funds' in its annual report.

The IRDAI Investment regulations have specified that "the pattern of investment (approved by the board of directors) shall apply to the entire investment assets (both shareholders' and policyholders' funds taken together) and the investment assets can be maintained in a single custody account".

Valuing General Insurance Companies

As good as a strategy it is to track the underwriting results of a general insurance company, it is not enough. This needs to be supplemented with tracking the cost of float and the investment results of the company. Hence, a three pronged approach is suggested here to gauge the desirability of a general insurer as an investment. A holistic strategy of this kind will give the overall picture of the operations of the general insurance company and help with the investment decision.

Note the word "track" above. This has been used to indicate that a single year evaluation of the three - underwriting results, float and investment results - is of little importance while analyzing insurers. These should be examined for a number of years in the past. An examination of the past results of the company will help in getting some idea about its future.

If a general insurer has been able to make underwriting profits in each of the past few years, go further back. There will certainly be a number of years in the past when the insurer has taken underwriting losses. If not, this should raise flags about the veracity of the underwriting results of the company and require in depth analysis of its segment wise underwriting results.

As mentioned earlier the underwriting loss that an insurer incurs is the cost of holding float. But a string of numbers only indicating the underwriting losses is of no use unless we compare it with the float itself. Taking the ratio of the underwriting loss and the float generated by the business gives us a percentage value that indicates the interest rate the insurer is paying for holding that float. If this "interest rate" is consistently lower than the cost the company would otherwise incur to obtain funds from other avenues, the insurance operation can be considered to be profitable over time. However, if this cost of float is consistently higher than market rates for money for a long time, the insurance operation should be considered unprofitable. If the cost is lower, the value is positive – and if the cost is significantly lower, the insurance business qualifies as a very valuable asset.[6]

For evaluating the investment results of the general insurer, the yearly investment yield of the company should be compared with the rate of return generated by the wider capital market.

As major portions of their investment funds are invested in equities and bonds, the returns on investment generated by the general insurers should be compared with both - the return of the equity market as well as the bond market. If the returns generated by the general insurer consistently beat the returns on bond markets and have not lagged too much behind the returns generated by the stock market, the general insurer should be considered to have used the funds available to it intelligently.

For better understanding, let's look at the reported numbers of three companies and try to figure out which company has created value for its shareholders over the years. The cost of float is compared with the yearend yield on 10 year govt. bonds to indicate that, if the company had been in the investment business and had managed to sell bonds at this rate to raise capital, it would have paid less as interest than the underwriting loss taken by undertaking the insurance operations. The last two rows indicate the disparity between what kind of value would have been created if the company had not undertaken insurance activity and the actual value created by undertaking the insurance activity. This is in no way to indicate that a company should not undertake insurance activities. Rather, it is to say that these activities should be better managed to keep the cost of float below the cost of funds from other avenues like debt and other borrowings. The long term average return provided by the Indian stock market in the period under review is close to 15%. As the companies have to invest in a regulated way, a yield of anything close to this rate should be considered exceptional.

Company A

Year	2016	2015	2014	2013	2012	2011	2010	2009	2008
Underwriting Loss (Cr) (A)	3324.83	3633.28	1462.62	1217.80	1220.84	1381.10	1720.40	968.68	403.97
Float (Cr) (B)	14822.62	14936.13	13318.89	11716.71	9846.94	8352.31	7691.24	6184.90	5926.94
Cost of Float (%) (C)=(A)/(B)*100	22.43%	24.33%	10.98%	10.39%	12.40%	16.54%	22.37%	15.66%	6.82%
Year end Yield on 10 Year Govt. Bonds (%) (D)	7.00%	7.42%	7.84%	8.84%	7.95%	8.59%	7.99%	7.85%	7.01%
Yield on investments of the company (%) (E)	20.16%	22.39%	16.87%	16.16%	17.69%	17.90%	24.66%	22.24%	17.90%
Interest payable if float had been borrowed (F)=(D)*(B)	1037.58	1108.26	1044.20	1035.76	782.83	717.46	614.53	485.51	415.48
Investment returns (G)=(B)*(E)	2988.24	3344.20	2246.90	1893.42	1741.92	1495.06	1896.66	1375.52	1060.92
Return if float had been borrowed (H)=(G) - (F)	1950.66	2235.94	1202.70	857.66	959.09	777.60	1282.13	890.01	645.44
Actual Value Created (I)=(G) - (A)	- 336.59	- 289.08	784.28	675.62	521.08	113.96	176.26	406.84	656.95

The company has managed to increase its float at a compounded rate of 12.13% since 2008 but the amount of underwriting losses has increased disproportionately. The company has managed to create more value than the assumed case in only one of the last nine years. The performance of the company has started to deteriorate further in recent years which is visible from the negative actual value created in the last two years. This is turning out to be a value destroying venture for the shareholders.

Company B

Year	2016	2015	2014	2013	2012	2011	2010	2009	2008
Underwriting Loss (Cr) (A)	606.00	1183.00	1394.00	887.21	370.58	4971.17	1104.52	780.19	213.36
Float (Cr) (B)	41681.87	29555.89	27018.32	27024.51	26022.03	23858.00	16636.98	13752.64	12289.73
Cost of Float (%) (C)=(A)/(B)*100	1.45%	4.00%	5.16%	3.28%	1.42%	20.84%	6.64%	5.67%	1.74%
Yearend Yield on 10 Year Govt. Bonds (%) (D)	7.00%	7.42%	7.84%	8.84%	7.95%	8.59%	7.99%	7.85%	7.01%
Yield on investments of the company (%) (E)	12.35%	12.91%	14.08%	12.13%	10.13%	10.37%	12.56%	11.93%	10.70%
Interest payable if float had been borrowed (F)=(D)*(B)	2917.73	2193.05	2118.24	2388.97	2068.75	2049.40	1329.29	1079.58	861.51
Investment returns (G)=(B)*(E)	5147.71	3815.67	3804.18	3278.07	2636.03	2474.07	2089.60	1640.69	1315.00
Return if float had been borrowed (H)=(G) - (F)	2229.98	1622.62	1685.94	889.11	567.28	424.67	760.31	561.11	453.49
Actual Value Created (I)=(G) - (A)	4541.71	2632.67	2410.18	2390.86	2265.45	- 2497.10	985.08	860.50	1101.64

This company has increased its float at rate of 16.48% compounded year on year. Despite the increase in underwriting business, the losses at the company have been managed well and the company took a solitary large underwriting loss in 2011. This is expected in the insurance business. Although the company has not managed to generate an underwriting profit in the last nine years, it has created more value in each year except 2011 than what would have been created if the funds were borrowed. This is an exceptional performance.

Company C

Year	2016	2015	2014	2013	2012	2011	2010	2009	2008
Underwriting Loss (Cr) (A)	Profit	65.00	Profit	4.00	62.00	180.00	238.00	83.00	91.00
Float (Cr) (B)	8085.77	7075.78	6266.29	5844.44	5070.86	4226.69	3429.73	2273.38	2047.77
Cost of Float (%) (C)=(A)/(B)*100	Less than zero	0.92%	Less than zero	0.07%	1.22%	4.26%	6.94%	3.65%	4.44%
Yearend Yield on 10 Year Govt. Bonds (%) (D)	7.00%	7.42%	7.84%	8.84%	7.95%	8.59%	7.99%	7.85%	7.01%
Yield on investments of the company (%) (E)	9.86%	9.36%	9.09%	9.59%	9.92%	9.45%	8.47%	9.03%	10.06%
Interest payable if float had been borrowed (F)=(D)*(B)		525.02		516.65	403.13	363.07	274.04	178.46	143.55
Investment returns (G)=(B)*(E)	797.26	662.29	569.61	560.48	503.03	399.42	290.5	205.29	206.01
Return if float had been borrowed (H)=(G) - (F)		137.27		43.83	99.9	36.35	16.46	26.83	62.46
Actual Value Created (I)=(G) - (A)		597.29		556.48	441.03	219.42	52.5	122.29	115.01

Last and certainly the best. This company has increased its float at a compounded rate of 18.71% over the period. In two of the last three years, it has managed to generate an underwriting profit. The cost of float has been lower than the cost of funds available by alternative methods in all the years when it has incurred an underwriting loss, thus creating more value every such year than possible otherwise. The value created by the company in the years when it has generated underwriting profit, is the total of underwriting profit and investment returns net of

other expenses. It did not cost the company anything to hold the float in year 2016 and 2014, rather it got paid (the underwriting profit) to hold the float. An insurance company that can consistently generate underwriting profit year on year should be considered the best in the industry. Though this company has a long way to go to be called the best, the performance thus far has been fantastic. One negative point about this company is that it is not utilizing the full potential of the float it creates – the investment yield has been below the market returns in the past. If the company manages to change this and generate higher investment yield, it could create even more value for its shareholders. Even if the future is anything like the past, the growth in underwriting premiums will produce more value for this company.

It is clear from the comparison of these three companies that a three pronged approach - underwriting profit/loss, float and investment yield - to valuation of general insurance companies is suitable to determine the desirability of general insurers for investment. The less the cost of float, the better the business will do in the long term.

As mentioned earlier in the section on Float, the figures for underwriting results, policyholders' funds, etc. as given in the annual reports of insurers should be fairly accurate. However, a cautionary statement seems necessary: "Because loss costs must be estimated, insurers have enormous latitude in figuring their underwriting results, and that makes it very difficult for investors to calculate a company's true cost of float. Errors of estimation, usually innocent but sometimes not, can be huge. The consequences of these miscalculations flow directly into earnings. An experienced observer can usually detect large - scale errors in reserving, but the general public can typically do no more than accept what's presented, and at times I have been amazed by the numbers that big - name auditors have implicitly blessed".[7]

Other Valuation Parameters

The above mentioned method is by no means the only way to value an insurer. Other traditional metrics can also be used separately or in conjunction with the above method. The following metrics can be used as a part of a holistic method to value insurance companies: Return on equity (ROE), Operating Ratio, Underwriting Leverage, Recurring Revenue per employee, etc. A detailed account on these is out of the scope of this discussion.

Conclusion

This paper reviews and analyses the business model, float generation and valuation of insurance companies. The primary objectives are to describe the meaning of float, discuss and evaluate the effect of cost of float on value creation and explain how financial disclosures can be used to analyse and value the insurance companies. The discussion should be of interest to insurance analysts, investors, regulators, researchers, students and others interested in the insurance industry.

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Merit Winner

Technical Paper Essay Competition (Life)

Innovative Methods for Increasing Penetration of Life Insurance in India

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Abstract

India is one of the potential markets as far as Life insurance space is concerned. But of late, the Life insurance market in India is witnessing a drop in its performance; which is attributed to several factors. There are lots of challenges that Life insurance companies face these days, there is a considerable change in the buying behaviour of the people. They are not ready to buy life insurance products as they feel uncomfortable in purchasing it, since the importance of having it is not felt. A county like India has huge potential to sell life insurance, but somehow life insurance companies find it difficult to sell their policies. There are lots of changes happening in terms of regulation, technology, which can act as both positive and negative stimuli for purchase of life insurance products. The product range offered by the life insurance companies needs a review. Lack of product innovations and differentiation might lead to stagnant sales and less competition in the market. It will certainly lead to exit of low performing life insurance companies. Unless there are clear and predefined strategies to sell Life insurance, it would be difficult for the market to grow.
This paper tries to analyse the trends that are changing in the Life insurance industry, the challenges that are faced by the life insurance companies and

strategies that can overcome the challenges.

Keywords
Life Insurance, Penetration, Buying Behaviour, Product differentiation

Introduction

Life Insurance market in India has been a monopoly business till 1999. LIC was the only player in the market selling life insurance policies. The term "Life insurance penetration" indicates the growth of Life insurance business in a country. It is measured in terms of the ratio of premium underwritten in a particular year in a country to its GDP. Due to the geographical spread of India and it being thickly populated, India always appears as a potential market to the world in terms of selling life insurance policies. Following are some of the feedbacks received by wealth managers when they discuss with investors on their difficulty:

a. How to calculate how much life cover they require
b. How to select the correct life insurance company
c. How to select the correct policy
d. How to differentiate between the products offered by various companies as most of them are identical
e. Insurance agents or corporate agents forcefully sell the policy without explaining the policy benefits
f. Fear on non payment of claims and survival of private companies
g. Huge Documentation work
h. People think that the main purpose of life insurance products is to save tax under section 80C of Income Tax act

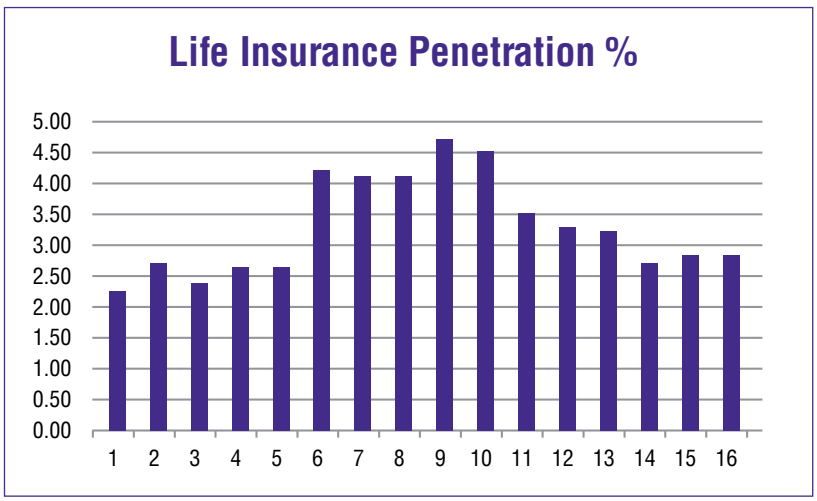
People look for short term savings rather than the long term outlook. Five years is considered to be the maximum tenure which an investor is looking at. All the investment avenues are seeing withdrawals beyond five years. This is not a good sign as far as financial planning is concerned. With increase in salary levels for fresher and for call centers and BPO jobs, people are moving towards a habit of spending more and are not aware about the value of long term savings. Life insurance products with long term benefits are ignored and policies with short term are preferred. People do not bother about life cover and feel that if they take health insurance it covers the expenses towards treatment and it is enough for them. Actually they do not realise the fact of "what would happen to their family if the earning member's life is lost"?

The above points raise some alarming questions on the product and distribution strategies of life insurance companies. Now we would try to analyse the trend in the Indian life insurance industry, why there is low penetration and the challenges in the hands of the Life insurance companies and how they can address the above problems by providing appropriate solutions so that they can meet the expectations of Life insurance investor and improve their business.

Life Insurance market in India has been a monopoly business till 1999. LIC was the only player in the market selling life insurance policies. The term "Life insurance penetration" indicates the growth of Life insurance business in a country. It is measured in terms of the ratio of premium underwritten in a particular year in a country to its GDP.

Penetration over the years

Looking at the Indian life insurance penetration numbers, one can witness the consistent drop in the penetration numbers. In 2009 the penetration percentage was at 4.60 whereas in 2016 it is at 2.72. The global life insurance penetration percentage as of 2017 is at 2.81%. But the scenario has become worse in 2014 the penetration percentage has dropped to 2.60%. The reason for drop in penetration is attributed to rise in inflation and drop in disposable income.



Business Statistics

New Business premium

The below data pertaining to the new business can be looked in two way. From the number of policy perspective and from the amount of premium collected perspective. If we see it from premium perspective there has been a growth 45.31% in the private insurers between the time period 2014-2015 to 2016-2017. During the time period LIC has grown by 58% and the overall industry has grown by 54%. When we look in terms of number of new policies sold during the same period, there is a 10.21% growth in the private insurers and -0.19% growth in LIC and 2.11% growth in the industry as a whole. There has been a negative growth of (-1.05%) in the total policies sold between 2015-2016 and 2016-2017.

If we see private player wise data of the premium growth between 2014-2015 and 2016-2017, out of the 23 players 3 players have negative growth. If we compare on the basis of number of policies sold 5 private players have negative growth.

Overall Live policies

The below table shows one of the key details about the Indian Life Insurance industry in terms of Live individual polices as of 2016 financial year end. Entire industry looks at new business as a parameter for measuring growth, but if we look at the below table we can clearly see that except few companies others don't have sufficient number of live policies. This data indicates the number of approximate customers that an insurance company holds at that particular point in time.

First Year Business Details (Amount in Crores)						
	Premium			Policies		
Type of Insurer	2014-2015	2015-2016	2016-2017	2014-2015	2015-2016	2016-2017
Private	34840.01	40983.00	50626.23	5738812	6193339	6325145
LIC	78302.64	97674.32	124396.27	20171063	20546749	20131500
Grand Total	**113142.65**	**138657.31**	**175022.50**	**25909875**	**26740088**	**26456645**

Source : compiled from IRDA New business data

Individual Business in force (Policy in '000)		
Sl No.	**Insurer**	**Number of Policies in force as of March 2016**
1	Bajaj Allianz Life	4402.17
2	Exide Life	1191.03
3	Reliance Nippon Life	2974.32
4	SBI Life	5633.55
5	Tata AIA Life	1221.48
6	HDFC Standard Life	4617.47
7	ICICI Prudential Life	4629.70
8	Birla Sun Life	1895.31
9	Aviva Life	549.76
10	Kotak Mahindra Old Mutual Life	1219.06
11	Max Life	3755.43
12	PNB Met Life	1042.74
13	Sahara Life	273.98
14	Shriram Life	580.05
15	Bharti Axa Life	393.44
16	Future Generali Life	333.29
17	IDBI Federal Life	494.41
18	Canara HSBC OBC Life	293.59
19	Aegon Life	278.51
20	DHFL Pramerica Life	180.67
21	Star Union Dai-Ichi Life	403.89
22	IndiaFirst Life	403.13
23	Edelweiss Tokio Life	81.43
24	LIC	290216.72
	Grand Total	**327065.13**

Source : compiled from IRDA handbook

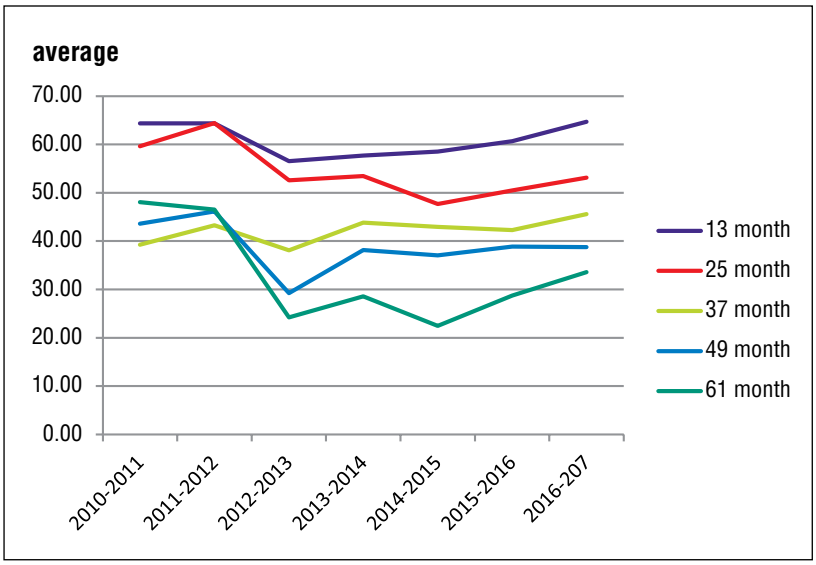
The total in 2014-2015 was 326296.62 and in 2013-2014 was at 334802.21, there is a negative (-2.36%) growth in the number of individual business policies in force between 2013-2014 and 2015-2016 which is not a healthy sign.

The below data pertaining to the new business can be looked in two way. From the number of policy perspective and from the amount of premium collected perspective. If we see it from premium perspective there has been a growth 45.31% in the private insurers between the time period 2014-2015 to 2016-2017.

Persistency

The term **Persistency can be defined as "the volume of business that a life insurance company is able to retain".** The table below reflects the Indian Life insurance persistency industry average for 13,25,37,49 and 61 months. There is a considerable drop in persistency level in all categories. A drop in persistency means customer is not willing to continue the policy and policy has lapsed. While we say that Life insurance is a long term investment tool the below statistics shows that almost 70% of the policies are withdrawn within 5 years. That means so many individuals become uninsured. This leads to a question on the selling methodology and the product feature.

Chart 1: Indian Life Insurance industry persistency average



GAP Analysis – What is Changing ?

If we go back and start analyzing what is going on in the life insurance industry and why the customer is not continuing the policy after five years, the following attributes play a major role.

1. Life style has changed

From the joint family system, the life style has changed totally to nuclear family system. Today the marriage age of individual is shifting and either they are getting married too early within the age group of 27 or too late at the age of 35. Further, most of the people start earning at very early age and today the feeling of "Young India" is to spend more than save.

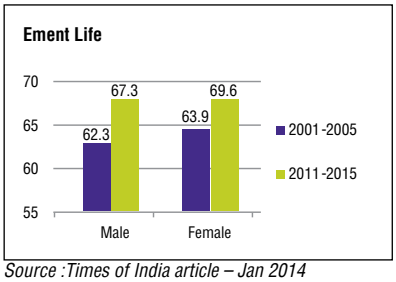
Table 3 : Indian Life insurance business – Industry persistency

Month	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-207
13 month	64.35	64.37	56.52	57.70	58.55	60.68	64.70
25 month	59.61	64.43	52.58	53.46	47.68	50.47	53.15
37 month	39.24	43.30	38.09	43.84	42.94	42.28	45.59
49 month	43.61	46.15	29.26	38.13	37.05	38.89	38.78
61 month	48.07	46.51	24.21	28.55	22.44	28.74	33.58

Source : data collated from IRDA handbook

2. Increase in Life span

In India medical facilities have grown considerably over the last decade. Thanks to the advancement in the medical science the average life expectancy of an individual has increased. The number of years an individual lives has increased from 62.3% to 67.3% for male and 63.9% to 69.6 % for females. Since joint family system has gone away, Elderly person are bothered more about taking care of their health and retirement life.



Source :Times of India article – Jan 2014

3. Prefer Health Insurance for extending life

People prefer to buy a good health insurance policy with sufficient cover to protect the increase in the cost of medical expenditure and

for increasing their life expectancy. What they feel is rather than taking a Life insurance cover, they prefer to take a medical cover for their entire family as they think that is important to spend for extending the life and present requirements rather than looking at the future. Further the cost of health insurance itself is high and the middle class is not able to invest more money in other type of insurance.

4. Prefer to save for retirement

With retirement period getting extended, people try to save for their retirement and look at various retirement options. Since annuity plans do not provide attractive returns they are not occupying major portion of any retirement portfolio. Since people feel that the important expense during retirement age is health issues, they try to protect themselves against it. Further the life cover of all the term plan products is predominantly till the age of 65 years.

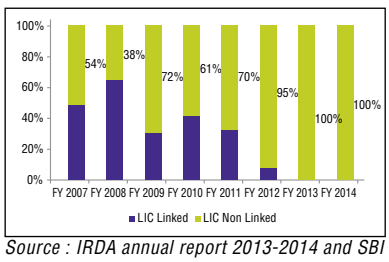
5. Life insurance companies pushed ULIP products

Life insurance sales of both private and public sector players where focused towards ULIP products which were linked to the financial market. Since Indian stock markets were on the upward trend from 2009, ULIP products where pushed easily in the market stating the advantage of having both insurance cover and market appreciation. Because of this ULIP wave the new business sales was high during this period. **People did not consider ULIP as a pure insurance product and started withdrawing these products after their minimum term period. Agents also were forcing them to do so as the money could be reinvested**

IRDA came up with new guidelines for ULIP products in July 2010. Immediately following these guidelines, during FY 2010-11 to FY 2014-15, the industry witnessed a shift in the product mix from linked products to non-linked or commonly known traditional products. The traditional products contributed about 71% of new business for the private sector as compared to industry as a whole where the share of traditional products is about 93% during FY 2013-14.

In case of LIC, the linked products contributed 62% of total new business, whereas traditional products had contributed 38% in FY 2007-08 (pre ULIP guidelines). After the ULIP guidelines came in force, there is a significant shift from linked to non-linked products wherein the share of linked product has reduced to almost Nil in FY 2012-13 which has continued in FY 2013 -14 with overall growth in new business premium. The same is shown in the chart below.

Chart : LIC product Mix

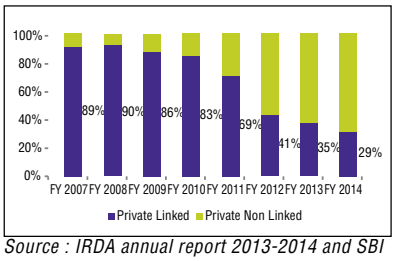


Source : IRDA annual report 2013-2014 and SBI Life insurance annual report 2014

Similarly there is a clear shift noticed in product mix for the private sector with the contribution of ULIPs declining and that of traditional products growing. Linked product had contributed 90% of total new business in FY 2007-08 which has reduced to 29% in FY 2013-14.

The same is depicted in the chart below.

Chart : Private players product Mix



Source : IRDA annual report 2013-2014 and SBI Life insurance annual report 2014

Now the focus is towards pushing the sales of non unit linked products. The point still missed by the life insurance companies is that their key market is "Rural India". The Market requires new products and cannot sell only the existing products as there is a lack of product differentiation.

6. Competition

The competition is not healthy in the industry. The Life insurance companies which started lately are unable to sell their products and do not have high customer base. Profitability is also a worrying factor for some of the private life insurance companies. Since the expansion cost is very high, they are not able to reach out to the rural areas. Life insurance Companies which are able to gain confidence of the customers are able to sell more policies.

7. Lack of Innovative Product

People have started looking for new and innovative products from Life insurance companies rather than the regular products getting offered with different names. Product innovation is an important aspect in any industry and life insurance industry is not an exception to it.

a. For example life insurance companies can look at a product which gives "Life + Health" cover

whereby a particular amount of sum assured can be used for health insurance purpose after attaining certain age.

b. They can look at Life cover plus returns linked to inflation where by the returns would be at par with growth in insurance.

c. Better way of managing ULIP products. If a Mutual fund can give better returns to the investor than ULIP, then it denotes that there is lack of efficiency in the fund management part in ULIP funds which needs to be corrected.

Unless innovative products are introduced it would be difficult to attract public attention.

8. Mis-selling / Revenue based product selling

People are forced to buy life insurance products without understanding the needs of the product. Agents try to push the products which yield them **higher revenue and they also churn the customer by discontinuing the old policy after a specific period in order to earn more commission.** To curtail this, the insurance company must look for

a. Product experts are not available to guide the customer. Each company must have product experts to explain about the product.

b. Insurance companies normally pays higher commission for new business when compared to renewals, which forces the agents to ask the customer to withdraw the policy. It is better to have a uniform structure and clawback enforcement of entire commission paid if investor does not complete the required tenure.

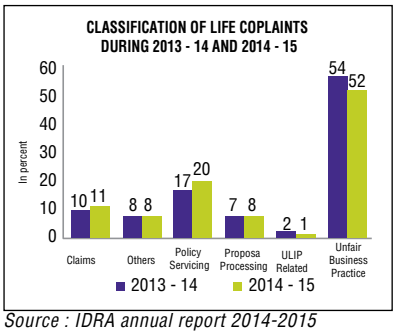
c. Pre sales call should be clear and precise and policy must not be issued if there is negative response / lack of understanding about the product.

d. Investor education is a key element which can help in controlling mis selling.

e. Sometimes the agent sells the policy stating that it is a single premium policy whereas it is actually a policy with regular premium. Insurance agent gets the first year commission and does not bother about the investor continuing the policy. Insurance company needs to clearly specify to the investor in their pre sales call about this.

Complaints data

Complaints relating to unfair Business practice is suppose to be the highest when it comes to classification of complaints received by Life insurance companies during 2013-2014 or 2014-2015. The below data from IRDA depicts that in 2014 - 2015 52% (56% in 2013 - 2014) of the complaints received is for unfair business practice. This means there is some serious issue with the system which needs to be addressed.



Source : IDRA annual report 2014-2015

9. Cost of the product

With the advancement in system, underwriting has become much easier than the olden days. But insurance companies are unable to reduce their cost, especially the private insurance companies as they incur huge channel and distribution costs. If a person can invest in SIP in a mutual fund and it can be cost effective as the expenses of the fund are very low when compared to a ULIP product, why would an investor invest in ULIP? He could very well go ahead with SIP in a mutual fund. Unless life insurance companies start thinking in terms of cost reduction, it would be difficult for them to compete / sell the policies. Further people restrict themselves to one policy as they are not able to afford for paying more than one premium.

10. Fear on Losses accumulated of private insurance companies

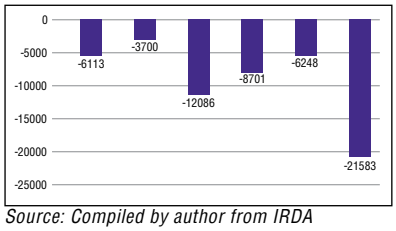
Looking at the financials of the Life Insurance companies, 6 private insurance companies are struggling to bring their numbers to green because of the bad strategies adopted by them. The set of data shown in the below table is very important in terms of profitability of the private life insurance companies, if we look at the table below lots of companies are at the edge in terms of profitability. Unless the companies change their strategy to reduce losses it would be difficult to survive in the present competitive market.

Sl. No.	Insurer	Profilt / Loss as on 'March 2016 (in lakhs)
1	Bajaj Allianz Life	83626
2	Exide Life	11895
3	Reliance Nippon Life	-6113
4	SBI Life	95465
5	Tata AIA Life	11348
6	HDFC Standard Life	89213
7	ICICI Prudential Life	168223

Sl. No.	Insurer	Profit / Loss as on 'March 2016 (in lakhs)
8	Birla Sun Life	12282
9	Aviva Life	-3700
10	Kotak Mahindra Old Mutual Life	30327
11	Max Life	65993
12	PNB Met Life	6387
13	Sahara Life	139
14	Shriram Life	1680
15	Bharti Axa Life	-12086
16	Future Generali Life	-8701
17	IDBI Federal Life	5206
18	Canara HSBC OBC Life	11127
19	Aegon Life	-6248
20	DHFL Pramerica Life	6135
21	Star Union Dai-Ichi Life	5483
22	IndiaFirst Life	3517
23	Edelweiss Tokio Life	-21583
24	LIC	223174

Source: Compiled by author from IRDA handbook

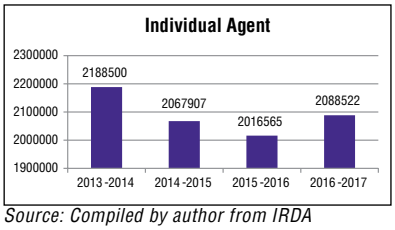
Top Accumulated Losses



Source: Compiled by author from IRDA handbook 2013-2014

11. Distribution

If we look at the distribution channel for life insurance, the major channel is individual agents followed by the banks.

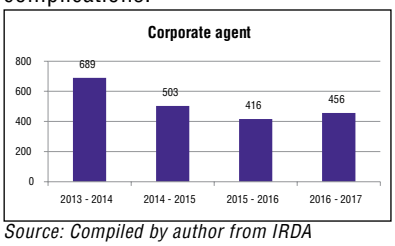


Source: Compiled by author from IRDA handbook

The main problem faced here is that there are not many individual agents enrolled with private insurance companies. Private insurance companies predominantly look for bank partners to sell their products.

This may not work out on all instances. If they have to reach villages then they need to have a good amount of individual agents. If their product is not reaching the correct targeted audience, then the company loses the advantage and market share as well.

There has been a decline in the agents, one of the reasons might be due to the drop in the commission rates. Since the direct channels and the online channels have not picked up in rural areas, drop in number of agents would lead to more complications.

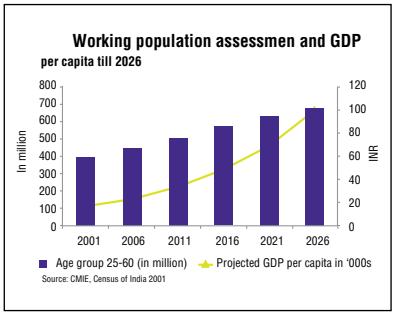


Source: Compiled by author from IRDA handbook

Companies must promote online sales and reduce their channel cost so that they can reduce the premium rates.

Strategies for Future

The most important factor to look for is life insurance coverage in India is very low, and many of those insured are underinsured. This clearly shows that there is immense potential. The below chart on CMIE date shows two important trends, the working population in the age group 25–60 years is in increasing trend and the projected per capita GDP indicates rising of disposable incomes. The demand for insurance products is expected to increase due to the increase in purchasing power.



Looking at the data on the savings on Household release by RBI, one can come to a conclusion that the savings amount is not going down and it is likely to increase due to increase in the number of earning members.

Household Investments in various Financial Products ₹ In Billion

Year	Currency	Bank Deposit	NBFC Deposit	Life Insurance	Provident & Pension Fund	Shares and Debentures	Total Financial Asset
2005-06	521.51	2657.16	5.22	834.94	619.50	338.57	5841.92
2006-07	671.94	4292.82	45.84	1148.51	725.03	508.47	7646.71
2007-08	812.78	3890.08	12.86	1698.48	715.44	743.08	7723.85
2008-09	921.88	4178.33	147.42	1528.61	733.98	-23.33	7268.89
2009-10	969.40	3981.41	185.16	2598.21	1298.49	448.41	9897.98

Household Investments in various Financial Products							₹ In Billion
Year	Currency	Bank Deposit	NBFC Deposit	Life Insurance	Provident & Pension Fund	Shares and Debentures	Total Financial Asset
2010-11	1371.31	5482.99	50.99	2101.02	1411.39	17.29	10798.67
2011-12	1062.42	5259.70	100.21	1956.73	956.92	173.36	9335.43
2012-13	1115.21	5750.80	172.66	1820.97	1240.20	437.90	10244.52
2013-14	1019.19	7741.76	305.67	2052.22	1362.23	323.53	12792.54
2014-15	1317.11	5792.95	274.36	2347.16	2008.35	570.73	12356.22

Source : RBI *Handbook of statistics on Indian economy – 2015. Life Insurance Fund includes Central or State Governments employees' insurance funds and postal insurance funds.*

Percentage of Household Investments in Various Financial Products						
Year	Currency	Bank Deposit	NBFC Deposit	Life Insurance	Provident & Pension Fund	Shares and Debentures
2005-06	8.93	45.48	0.09	14.29	10.60	5.80
2006-07	8.79	56.14	0.60	15.02	9.48	6.65
2007-08	10.52	50.36	0.17	21.99	9.26	9.62
2008-09	12.68	57.48	2.03	21.03	10.10	-0.32
2009-10	9.79	40.22	1.87	26.25	13.12	4.53
2010-11	12.70	50.77	0.47	19.46	13.07	0.16
2011-12	11.38	56.34	1.07	20.96	10.25	1.86
2012-13	10.89	56.14	1.69	17.78	12.11	4.27
2013-14	7.97	60.52	2.39	16.04	10.65	2.53
2014-15	10.66	46.88	2.22	19.00	16.25	4.62

Source : RBI *Handbook of statistics on Indian economy – 2015. Life Insurance Fund includes Central or State Governments employees' insurance funds and postal insurance funds.*

From the above data it is clearly visible that the trend in savings is not changing much and while combining with the factors such as

a. Projected growth in the GDP

b. India growth story intact

c. Increase in the population in the earning age bracket

d. Government initiatives

It will definitely increase the savings habit. Insurance is also one of the important savings avenues and government is more focused on this sector as it contributes to the growth of the economy in a big way.

The below data shows that there is huge potential for life insurance in India. The percentage of uninsured households has made the foreign players to enter India and increase their FDI stakes in private sector companies.

Households Possessing Insurance Policies in Comparison with Household annual Incomes			
Household annual income (₹ in thousands)	Number of households in millions	% of Household holding a Life insurance policy	% of Household not holding Life Insurance Policy
>200	10	57	43
>135-200	45	43	57
>90-135	17	39	61
45-90	56	24	76
<45	76	13	87

Source: Survey of 4125 individuals in BCG's next billion consumer research,2007, BCG analysis. The Boston Consulting Group Report, 2007, page no 16.

The opportunity lies in rural areas of India which is still untapped. They are not able to afford life insurance policies due to the high premium cost. They need to somehow come up with product variants with lower premium and push aggressive sales campaign in rural markets. A simple mantra is "When mobile phones can reach every corner of rural India" why can't life insurance products ?

Life insurance companies can look into the below strategies for improving their business.

1. Branding

Life insurance industry in India is highly competitive. Lot of players are there in the market and definitely one needs to show their difference from other, for this branding is essential. Life insurance companies must start looking "Branding" as one of the important tool to reposition themselves.

Branding is relevant because of the following factors:

- It is building of trust with employees, customers and stakeholders
- It separates a company from its competitors in a unique way to its existing customer and prospects
- It increases the companies perceived value
- Customers trust strong brands because they know what to expect
- It enables the company to launch new products more quickly and cost effectively
- It makes people to remember and recall
- With social networking becoming more and more popular, unless the customer is able to recollect the brand, it becomes tough to reach the customer mind space

USP (Unique selling proposition)

Life insurance companies must define USP for themselves to separate them from competitors. USP is what you do and how you do it better or differently than others. I don't think Insurance companies are currently projecting any USP to the customers.

Branding can really help the Life insurance company to spearhead its visibility and sales from other competitor. **With not much changes among the product lines, it is the trust of the customer which makes the organization to survive.** As branding is an important tool for building trust, Life insurance companies must focus on branding their product with USP features.

2. Product positioning

Each Policy has unique features and cannot be sold to every one. The Life insurance company must do a product positioning strategy. The positioning of the product can depend on various factors like.

a. Demographic factors of each individual

b. Stage of Life cycle

c. Products available with the insurer

d. Area and Locality

Based on all these, the sales strategy must be defined. **Selling a wrong product to a customer** would affect them in the long run as they will not continue the policy when they are aware about the facts. Agents must be clearly trained on the product features.

Age wise population classification analysis is very much required in positioning the right insurance product required. The current age wise classification of Indian population is depicted in the below table, it is clearly visible that almost 75% of the population is less than 44 years. Gone are the days where one type of policy can be sold for all age groups. With the increasing awareness on financial planning it becomes necessary for introducing products based on goals.

Table B: Projected Age-structure of Population in India

Age-Group (in yeas)	Percentage of population in that age-group						Variation of 2016 over 2011 (percentage points)
	2011	2012	2013	2014	2015	2016	
Less than 25	48.9	48.9	48.4	47.9	47.4	46.9	-2.1
25-34	16.2	16.2	16.3	16.3	16.4	16.4	+0.2
35-44	12.8	12.8	12.9	13.0	13.1	13.2	+0.4
45-54	9.8	9.8	9.9	10.0	10.1	10.2	+0.4
55-64	6.6	6.6	6.8	6.9	7.1	7.2	-0.6
Above 64	5.7	5.7	5.8	5.9	6.0	6.1	+0.5
Total	**100.00**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	
Source: UNSTAT							

Source: Report of the Working Group on Savings during the Twelfth Five-Year Plan (2012-13 to 2016-17)

> Life insurance industry in India is highly competitive. Lot of players are there in the market and definitely one needs to show their difference from other, for this branding is essential. Life insurance companies must start looking "Branding" as one of the important tool to reposition themselves.

This means that the Life insurance industry must target and launch policies that suit their needs.

3. Shift from Transaction oriented approach

Today the entire Life insurance industry is in transaction based approach, whenever a customer approaches or salesman approaches the customer they conclude the transaction and then there is lack of continuity in the relationship. This is mainly because of the fact that the company feels that there are more customer to target and they need acquire new customers.

Life insurance is not a one - time transaction, it is building relationship with the customer till the life of the policy. This approach needs to be established. In case of policy renewal each and every sale person and agent appointed by the company must make efforts to keep the policy "live" explaining the position of the policy to the customer.

Customer interaction never stops with transactional aspects, it is the "relationship" which the customer values and remembers more that his policy.

4. Building customer confidence

Today retaining customers is a big task. Gaining customer confidence can help the Life insurance companies to retain their customers. Gaining customer confidence is not a rocket science, it cannot happen on a one single day but can be spoiled on a single event.

In case of a service industry like insurance, customer confidence can be gained by providing correct and needed service. These days, companies must look for something extra for creating "Customer delight". Some of the examples below can really make a customer happy which in turn increases customer royalty

- HNI database to be analysed and suggest an increase in cover they require based on n increase in their income levels.
- People who have taken policies 4 or 5 years before may not be in the same income group or their family status would have changed, Life insurance companies can reassess their risk and provide life cover accordingly.
- Suppose there is a new entrant in the family, Life insurance company can approach the customer with a child plan with **reduction / concession in premium since he is an existing customer.**

These are only sample ideas and Life insurance companies must gain confidence of the customer to survive in the market.

5. Life insurance is sold and not bought

Today Life insurance is not bought by individuals and they are sold. Life insurance companies must change this approach and must start attracting public, they can use some of the options suggested below:

- Appointing Financial planning executives and complete financial planning exercise for public in general irrespective of whether they buy a policy immediately or not
- Creating awareness about the need for life insurance
- Conducting awareness programs for corporate employees
- Conducting programs on life insurance to college students as they would be entering into the earning group post completion of their education
- Advertisements in local language about the benefits of life insurance

Life insurance industry must slowly move towards pull strategy and must have a combination of push and pull rather than having only push strategy. The mix depends on the type of product, locality and technological innovations that the life insurance company has.

6. Systems cannot replace people element

In the tech savvy world today, people hardly find time to meet each other. Lots of Financial services transactions are moving towards online and Life insurance is not an exception to it. Today insurance companies sell their polices vide online, TAB, Mobile etc., Because they buy a policy via online channels, it does not mean customers do not want to have

any interaction with the insurance company. They welcome the efforts taken by the insurance company in guiding them to take the correct policy and servicing them in case of needs and emergencies. Technology and computers can facilitate employees to provide better service to the customers; The "Touch of the Human element" is always required. In a country like India, people still believe on persons and give their premium amount to the agent and take receipts later also. They buy a policy based on the guidance of the agent as they believe them. So it is clearly evident that the Human touch is required in life insurance industry to conclude things.

7. Cross sell & Data Analytics

Today the insurance company sells a policy to the customer and starts looking for the next customer. Data analytics must be done to identify the number of members in the customer family and people who are under insured or uninsured and must approach them for insurance. Further **Customers family who have been paid claim recently can be approached to take Life insurance**.

Data Analytics helps the company in focusing and targeting the segments that can provide quality business.

Big Data Analytics

Big data analytics is becoming very popular. Thanks to technology, because of various information sources available, companies are able to get huge amount of demographic and other data. But the main crux when it comes to internal and external data is to identify the relevant data from the big data that can be used. This is very much required to identify the target segments for each activity.

8. Maintaining Persistency

Life insurance company loses heavily if a policy holder stops paying premium in between as the company loads the cost front ended on the assumption that the policy holder will stay for the entire tenure. Following are some of the suggestions that can be implemented to improve the persistency level:

Suggestions to regulator

- Define minimum persistency level for each product
- Introduce a penalty clause for fall in persistency
- Define uniform method for calculating persistency
- Exclude single premium policies from persistency calculations

Suggestions to Insurance companies

- Clawback of entire commission paid to agent if policy is not continued
- Renewal discounts can be provided to customers by insurance companies if policy is renewed on time.
- Providing option to switch to other product if the customer feels that this product is not suitable

9. Preventing Wrong selling

This is one of the main reasons for increase in policy lapsation. Though this cannot be avoided it can be curtailed to a great extent. The following parameters must be given more importance.

- Pre sales calls must be made more effective
- Commission structure must be revised and equal weightage to be provided for renewal premium
- Customer service support of agent must be provided weightage during renewal of their license
- Complaint mechanism must be strengthened
- Whistle blowers must be there in each and every insurance company
- Customer education on various issues must be given more importance

Imparting the importance of Life insurance must start at the high school and college level. Today the scenario is that non commerce graduates are not aware about what is life insurance and the importance of the same until they come to an employment and that too because of the tax benefit that they get. This situation must change and awareness about life insurance must improve.

10.Scale up of Technology

People expect faster and better service from insurance companies by using appropriate technological tools. Life insurance companies must be geared up with these technology changes in order to move closer to the customers.

a. Tab / Mobile solution can be used by company / agents for reaching the customer and issuing policy faster
b. Using technology effectively in claim processing thereby reducing the turnaround time
c. Customer service can be improved by voice based IVR and tracking each and every request / complaint
d. Introducing voice debit process for payment of premium

e. Establishing centralized query processing / product knowledge sharing centres

New avenues of distribution using technology

With technology ruling the world, Life insurance companies must plan new distribution strategies to expand their reach. Life insurance companies can consider the below routes for distribution of life insurance policies

a. Having tie up with mobile operators and selling Life insurance products vide mobile phones. Today Airtel Money and Vodafone M peisa have become a popular medium for payments and the reach of mobile operators is very high as the population of mobile users are increasing day by day
b. Can look at selling Life insurance products thru the online retail portals like flipkart, Snapdeal, Amazon
c. Tie up with professional bodies like Chartered accountant institute, Engineer associations etc and promote products vide their network
d. Tie up with hospitals and insuring the child when it is born
e. Creating WhatsAapp groups by life insurance companies for its customers to share ideas relating to Life insurance and spread the importance of life insurance and distribute products
f. Since social networking is becoming popular, creating customer forums to discuss and promote Life insurance sales

11. Customer Service

Key and timely customer service can be an important factor for customers to continue their policy. **IRDA must bring in the concept of porting for life insurance policies. This can help the customer to continue their policy by shifting it to another insurance company if they are not satisfied with the service of the current insurance company.**

The E Policy initiative by IRDA has not reached many people. It is an excellent initiative whereby a customer can consolidate his polices in dematerialized form and have it under one insurance repository. Customer can pay premium for all polices, raise any service request vide the portal. This facility is currently supported by certain insurance companies and must be supported by all insurance companies. This facility must be improved to support redemption and claim settlements.

This initiative can help the Insurance industry to a great extent. It would help in improving customer service and can reduce lapsation.

12. Social responsibility

Today Life Insurance companies do a lot of CSR (corporate social responsibility) activities which is a welcome initiative, but as an industry they are already contributing to the wellness of the people. Their aim should be to retain policy.

13. Regulatory changes which can improve Life insurance business

Making Life insurance mandatory

Like Motor Insurance, Government must make Life insurance mandatory, it can be either the government sponsored social security scheme or Life insurance policy that suits an individual need based on their income and life style. Life insurance products can be linked and sold along with Motor insurance policies.

Separate tax exemption limit for Life insurance

Predominantly people buy Life insurance for tax saving purpose as it is part of 80C and one can invest upto 1.5 lakhs. Since there are lot of instrument along with PF comes under this limit can the government think of providing specific limit exemption for Life insurance investment.

Life Insurance – Is it essential ?

The answer to the above question would obviously yes, if you are a financial planner or a person who knows about the value of it, But what happens is most of the people in India are still not aware about the benefits of life insurance. Even though some of them buy it they don't know why they are buying it Life Insurance should be positioned as a long term product and should not be discontinued in between. Some of the above mentioned gaps can be plugged to make Life insurance product more attractive to the customer.

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Impact of Technological Advancements on General Insurance

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Abstract

The world of technology has changed over the last few years. "Technology" is at the front and it is making nod in almost every industry including insurance. The general Insurance industry of India is one of the oldest in the world. Huge changes have occurred in this industry in the last few decades. Most of the insurance companies worldwide and in India have invested significant amounts in improving their operations and technology and the major focus was on technology, operational processes and customer experience. In an age wherein you can request an Uber instantaneously or have an Amazon product delivered to your doorstep in less than an hour, the bar is suddenly raised for insurance industry. There is no doubt that general Insurance industry is one of the least innovative areas for consumer's experience but things have definitely changed in the last few years especially in India. Today's insurance agents do not operate in the same way that they did 30 years ago. Nowadays you can visit any insurance agent or broker or financial advisor and instead of having policy applications, brochures and papers, you can see a computer or laptop with them. Some of the new startups in India such as OLA and Uber have affected insurance product offerings and now some of the insurers have come up with

The world of technology has changed over the last few years. "Technology" is at the front and it is making nod in almost every industry including insurance. The general Insurance industry of India is one of the oldest in the world. Huge changes have occurred in this industry in the last few decades. Most of the insurance companies worldwide and in India have invested significant amounts in improving their operations and technology and the major focus was on technology, operational processes and customer experience.

product like pay as you drive and pay when you drive. New technologies have constantly being introduced in the recent past to serve the customers in their claims assessment and other related functions. Some of the Innovative improvements in vehicle manufacturing, residential and commercial buildings have reduced claim volumes. Safer vehicles, telematics, driverless vehicles and smart building sensors are also the part of this success story.

Technology is changing the way insurers and consumers interact, and giving insurers access to considerable data so they can better understand their customers, Aggregator or price comparison websites as well as social media (like face book, twitter etc.) have played an important role in the pre-sales process. "With telematics, smart phone and other related kind of technology, customers can now easily interact with insurer anytime and anywhere."

Advancement in Technology is like a double-edged sword. In other words technological innovation is perceived as a threat in the long run by most businesses due to security risks in a context of fast technological innovation, along with the increasing globalization and interconnectivity but on the other side, the opportunities of new technologies and their impact on people, business and society are of course cannot be forgotten. The big volume and richness of available data has also provided huge and many opportunities and challenges to general insurance industry. In the last few years, we have seen many insurers using mobile devices, GPS functionality, Block chain technology, Internet of things (IOT) and social media and the same have made underwriting and claim quicker and efficient. The Insurance companies have started giving importance to customer interactions and the same has helped insurance companies to maximize profits while keeping the customers happy.

Keywords

Internet of things (IoT), Insurance Self-Network Platform (ISNP), Prime Minister's Fasal Bima Yozna (PMFBY) Block Chain Technology, Automation. Artificial Intelligence (AI).

Some of the latest technologies have really helped in providing complete transformation to general insurance industry. Cloud Technology, advanced analytics, telematics, internet of things (IoT), GPS, Smart Phones, digital platforms, block chain technology, artificial intelligence (AI), drones etc. have provided the new ways to handle claims and underwriting. The same has helped the insurance industry to reduce cost and improve efficiency. These latest technologies have also provided the new insurance products, services and unique business models.

"Technology has changed the nature of risk and is able to create new products, services and channels"

"A quiet revolution is underway in India. The share of premium received through online sales in India is still small, but no doubt, the same is rising. The same has been proved under some of the surveys conducted in India that consumers increasingly research online and that the internet has become a trusted source of advice for insurance. Digital technology has made some of the insurance companies as market leaders. Whenever the customer comes to any insurer for purchasing any product, he is having the following digital expectations from Insurers.

- **Simplicity** – 1 click purchasing of insurance product
- **Convenience** – 24-hour access and quick delivery of their policy
- **Clarity** – clear and relevant product information such as pricing, innovation and claim related services

All those insurers who have moved quickly to meet the above-mentioned requirement of customers' digital expectations have grown their premium and all those Insurers who are still struggling to match the digital

expectations of customers are facing challenging to do business.

Most insurance companies in India have generally been slow to deliver on these customer expectations but they will need to address their customers' demands quickly if they have to maintain their position in the market.

All those Insurers who are fulfilling the customers' demands by digitizing their insurance business are getting both short-term and long-term benefits.

Short-term benefits include:

- Improved customer retention and customer's satisfaction through providing better service and faster processing times.
- Reduced costs of a claims by up to 40% through process claim automation.
- Higher underwriting profits through digitization.
- Identify fraudulent claims.
- Increased premium's growth in terms of both top line and bottom line through the ability to use customer data effectively.

Long-term benefits include:

Got opportunities for sale of new and innovative insurance products. For example, the growth in cybersecurity has increased the room for insurance products that prevents and protect against breach or loss of data and identity theft i.e. Cybercrime insurance etc.

Advancements in technology is creating both threat and opportunity for General Insurance companies.

General Insurers are currently threatened by following trends:

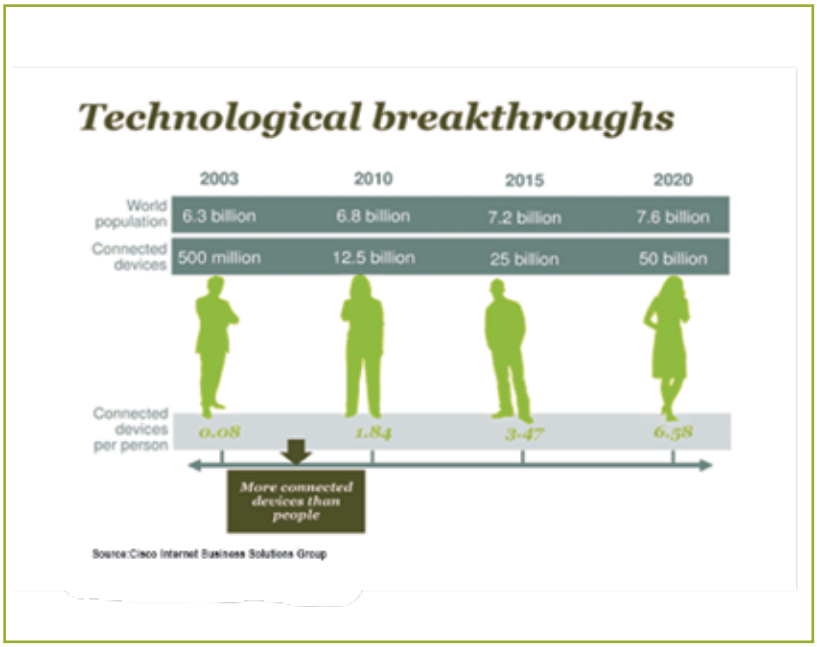
Shift to prevention rather than insurance

Digital technologies are now helping in preventing accidents and losses. For example, there are telematics devices and collision avoidance systems, self-driving cars which are make driving very safe, smart home technology that warns property owners in the case of risk of flood , theft etc.(this technology can also automatically shut-down the water supply or can raise the alarm in case of forceful entry of someone if necessary). Advancements like these have helped in reducing premiums through risk prevention, so many experts are predicting that insurance companies have started playing a role of risk avoidance role than risk mitigation and the same has reduced the value creation of underwriting.

Data and Analytics Tools

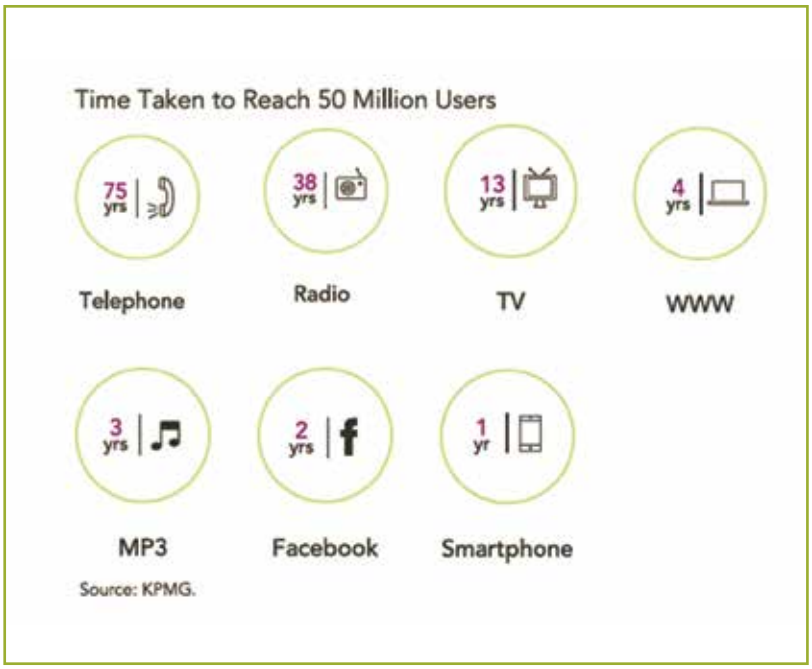
Most of the insurance companies are having huge historical data but they are still struggling to keep up and compete with those insurers who are collecting real time data and up-to date data through the Internet of Things (IoT) and through social media and other digital records like credit card history etc. For example, Telematics technology can now gather information such as driving habits like speeds and how the brakes are applied by the drivers etc. This information is more useful and relevant than historical information about age and past accident records. Now the threat to insurers comes not only from other insurers who are using these technologies effectively but also from digital giants, such as Apple, Google or Amazon. One of the new insurer who recently got license from IRDA has exclusively tied up with Amazon for selling their products online. Companies like Flipkart, Snap deal and Paytm has started selling insurance through their portal.

One of the major threat is coming from auto manufacturers and their developing 'connected car.' This would provide them with unique access to data related to driver's behavior that they could use to very accurately assess the risk of the driver. Armed with this knowledge, they have the ability to offer uniquely tailored insurance products.



However, even in the face of the above-mentioned threats, insurance companies are very well positioned to take advantage of this technology advancement. They are having a huge expertise through their big team of underwriters and knowledge that no one else has (for now). Insurance companies are having large reserves to underwrite large pools of risk, and most importantly, they are having the trust of their customers, who (for now) are confident that the company will still be around when the claim comes on their policy.

The pace of technology adoption in insurance is accelerating very fast and the innovation cycle is getting contracting (Please refer the below chart). All those insurers who are unwilling or unable to adapt to latest technologies and are not adjusting their business models will definitely get low growth in their premium and profits.



Impact of Technological Advancements on General Insurance

The Indian general insurance Industry has evolved from traditional broker or agent based scenarios to direct-to-market approach where middlemen like agent or broker are cut off and the brokerage benefits are passed directly to the insured. In addition, considering how insurance policies were underwritten previously, today insurers are able to transform the data provided by the insured into actionable insights and directly assess individual risks rather than rely upon insured to answer a set of standard questions to evaluate them. Considering the ongoing market trends and customer requirements and preferences as on today, Technology is no longer a "good or nice to have" notion but a crucial differentiator clearly spelling out success and failure of insurers. In the long run, to survive in this competitive market, Insurance companies have to keep pace with latest technologies and constantly enhance end user experiences to challenge competitors and remain competitive.

Positive Impact of Technology Advancements on General Insurance

Today use of Technology for insurer has become an important enabler for generating growth. Some of the positive impacts of Technology advancements on general insurance are as follows.

Helped In Generating New Business

Unlike other businesses, wherein a large variety of products to offer, insurance companies have very less number of products to sell. Therefore, acquisition of new customer was always an important issue for insurers and insurance companies were forced to increase their sales team to reach out to new buyers. But due to technological advancements in insurance, Traditional advertising methods such as hoardings, banner promotions, signage and TV commercial ads wherein lot of promotional expenses were involved are being replaced with online advertising campaigns which are easily afforded and cost significantly less. Insurers have started targeting new buyer audiences through online rather than reaching out to them physically as was the case in the past. Technology has helped the insurers to reduce customer acquisition cost.

Reduced Operational Cost

Technology has helped the insurers to save operational Costs through Process automation. Insurers have reduced the workforce and employee cost by substituting humans for technology enabled processes and devices. Now due to technological advancements, insurers have started to store, retrieve and process documents electronically using

PC networks without employing a huge team of clerical employees to physically move documents and files to different places. Now due to technology, there is no need to open offices in different parts of the country and maintain staff for all these offices. Technology has helped the insurer to reduce operational cost.. Insurers are also passing these benefits to Customers by offering more discounts or Offering More Covers in their products.

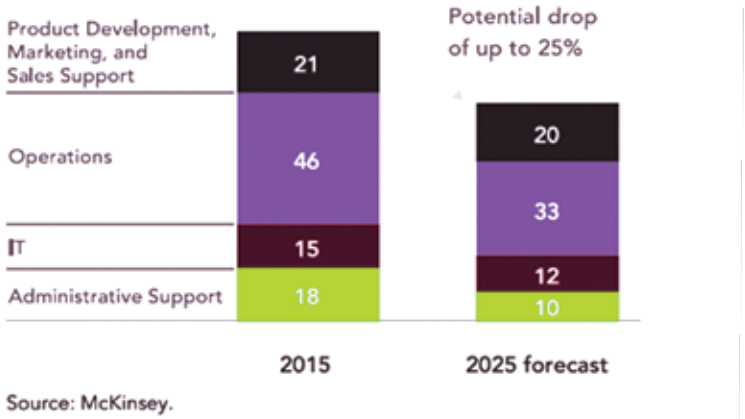
New Technology has made Underwriting Quicker and More Efficient

Insurance companies all over the world work with huge teams of underwriters to assess insured's background i.e. Financial, medical, driving history and pattern etc. to fairly assess how much their policies should cost. In the past, these processes were time-consuming, and required insurance customers

Chart 13

Insurance Workforce in W Europe: Share of Full-Time Positions

index, 2015 = 100



Source: McKinsey.

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to provide so many numbers of documents for assessment, but thanks to advancement of technology in the field of analytics, the process is now quicker and more efficient with introduction of new technology. From the last few years, we have noticed that each underwriting proposal was assessed off with paper application form, with so many reports from doctors, medical examinations, laboratories, and other tests etc. However, if we see it today we have moved from paper- to system-based, and straight through processing of more simple cases without human intervention. Electronic submission of medical records, underwriting documents and examination reports, and laboratory test results is already happening in most of the companies, but rules have been built within underwriting engines to process these automatically. Web aggregators who are selling policies through online are now retrieving vehicle details through Vahan software in matter of seconds. The claim history of the client can be checked online through IIB portal. One of the biggest hurdles faced by agents or brokers in the past was meeting a client at a particular location, or at a particular time and explaining the terms and conditions and warranties of the policy.
This consumed a lot of time and agents had to travel a lot to "close" customers and meet target deadlines but nowadays, policies are clearly explained on insurer's portals and interested visitors can communicate directly with the agents using online chats tools like Chatbot. Some of the Insurers have started providing video conferencing options to customers to clear their doubts on policy wordings. Now Insurer or agent can decide after interaction with client which customer should be given the policy and which should not. Technology has helped to make the underwriting process easier and quicker. Some of the Insurers has provided Mobile Application to their agents for instant issuances of policies.

As per New IRDA's Regulation Insurer can solicit business through the Insurance self-network platform of an intermediary.

Insurance self-network platforms:

Denotes the Online portals (websites) and mobile applications for selling and servicing of insurance policies

Who can operate such platforms?

All Insurers & intermediaries such as Corporate Agents, Brokers, IMFs, and Web Aggregators etc. can operate such platforms. Permission of IRDA is required for operating on such platforms. Products, which are approved under "file and use", can be sold through self-network platforms.

Impact of Drone Technology

In the last financial year, Indian insurance industry has a huge chunk of premium through crop insurance and Drones have provided the crop underwriters with more comprehensive data by capturing high-resolution visuals from a unique vantage point. Drones have also helped the surveyors to do Risk Inceptions of roof material, slope, property type and more. Now a days, Insurers have started using drone in investigation of claims. Drone technology is truly changing the insurance industry. In fact, by the year 2020, insurance is expected to be one of the top five markets served by commercial drones.

Now, Sensors and cameras carried by drones are capable of inspecting the outer surfaces of buildings and able to peer further inside the structures.

Reduced Loss Costs, Claims and Expenses

Advancement of Technology has helped the insurers in reducing Claims Costs, for example, in cars and other vehicles, IoT-based driver assistance and warning systems have reduced the number of accidents as well as vehicular damage. Some of the devices like Smart Home monitoring system has given more control to house owners and to the insurer over major risks like burglary and theft. The same has resulted in lower the premium on these products as claims and losses through these products have reduced drastically after placing of these devices. The Internet enabled

doorbell allows the customer to speak with unknown visitors using their smart phone from any part of the world. All the data are recorded and stored on cloud and Insurer can see it anytime and from anywhere.

Improved claims experience:

Most of the Insurers have launched their B to C App to improve customer experience. Apart from providing claim status updates on their apps, insurers are increasingly empowering consumers to pre-inform about a cashless claim on their app.

Advent of chatbots:

Customers are now getting round-the-clock support using chatbots. Insurer have created online customer accounts and through this, customers are now able to make changes in their policy. They can even increase or decrease the sum insured of their policy, make renewal payments, and request cancellations, completely replacing paperwork in these post-sale services.

KYC documentation:

IRDAI (The Indian Regulator) has given the deadline for linking all insurance policies with Aadhaar. Some of the insurers have already started this project. Integrations available with Unique Identification Authority of India will ensure instant check of Know Your Customer (KYC) documents. Insurance products that require mandatory KYC documentation will replace their existing KYC processes with instant Aadhaar authentication.

More Premium Mode Options for Insured

The recently launched payment gateways by different insurance companies have opened up innovative premium collection models. For instance, insurers are now able to take renewal premium or fresh premium through smartphones by giving different options like net banking, credit card etc. Insurers are sending renewal payment requests through text messages. Customers can simply click on the message received, tap a few buttons and make an instant renewal payment.

Block chain Technology

Insurance companies in India have started using block chain technology to settle Travel insurance and other claims. The earlier claim standard claims process entails that the customer registers the claim followed by submission of the certificate of delay from the airline along with the claim form. Now due to advancement of technology, as soon as the flight is delayed for few hours, the claim amount is credited to the insured account and there is no need for insured to actually filing a claim for an overseas flight delay.

Technology as an Enabler of Crop Insurance

Advancement of Technology has acted as an enabler for faster and increased penetration of the Prime Minister's Fasal Bima Yozna (PMFBY). In the Last Financial year around 16% of the total premium of general Insurance in India has come from Crop segment and the same was due to advancement of technology which was used for Crop insurance and these Includes the followings

- The insurers used satellite weather forecasting and satellite imagery, which gave early warnings of risks, and in turn, farmers too were alerted and losses were reduced or prevented.
- Internet of things (IoT), which is interconnection of electronic devices using the internet to send and receive data, was used effectively and the same collected information on soil health, monitoring crops, and collecting crop data effectively for insurers.
- Drones, Satellites and mobile cameras were used effectively for collecting data on area under production and for yield estimation, etc. The same was very cost effective for Insurers and this cost efficiency has encouraged all the insurance companies to increase crop insurance penetration. The government has already increased the target of coverage of PMFBY to 50% of the cropped area in 2018-18 from 40% in 2017-18.

- Deeper use of technology in agriculture and Increased use of internet connectivity and government's push for crop insurance has increased the Premium for Insurer in Crop segment.
- Adoption of innovative technology specially Smart phones/hand held devices for capturing conduct of CCEs have also imposed a very positive impact on Premium.

Segment	Industry Premium - (FY 16-17)	Share
Motor	50245.2	39.40%
Health	30764.51	24.10%
Crop	20611.42	16.10%
Fire	9540.9	7.50%
Other Mis.	5308.93	4.20%
P.A.	3609.17	2.80%
Marine	2902.41	2.30%
Engineering	2286.12	1.80%
Liability	1938.9	1.50%
Aviation	423.46	0.30%
Total	**127631.02**	**100.00%**

Some of the Negative Impact of Advancement of Technology on General Insurance Industry

In today's modern technology, most of the transactions are happening through Internet and the same has allowed more creativity in insurance business than ever before. Cybercriminals all over the world are carefully discovering the new ways to tap the most sensitive networks in the world. Protecting their existing and potential insurance data and customer's data for the insurer is a growing challenge. Some of the important threats for insurance industry are as follows:

Increased Risk and New Categories of Risk

Advancement of Technology has also put a threat of hacking the data whenever anybody use the technology device like telematics, Mobile App or even internet. Since Insurance, industry is witnessing many houses wherein insured lives in, or the vehicles he or she drives becoming "connected. The same could lead to more and more claims for insurance firms. At a broader level, cascading effect of the same can lead to a major attack on Big entities and buildings and even healthcare systems and the insurance liability of any such incident no doubt would be very high.

Potential Irrelevance of Insurance in Future

There is no doubt that in the long term, high levels of automation and advancement of technology such as IOT devise, Telematics, Block chain technology etc. will eliminate the human error element completely. The same will definitely reduce the demand and need for insurance and will help in reducing insurance premiums or even the total absence of insurance. Having said that, one could argue that potential premium and revenue loss from one insurance segment from the impact of advancement of technology can be more than made up by growth of new opportunities resulting from advancement of technology.

Data Privacy and Security Concerns

Although most of the insurance companies have started using latest technology of insurance but the one of the big barriers insurance companies need to address are the increasing concerns around data privacy and security from users. Many consumers are bound to be concerned about their privacy of data. New gadgets have come in insurance but with no plan on security of data. This presents a very serious concern for insurers.

Although the above-mentioned points are raising some threat of advancement of technology but IRDAI has given some guidelines to all the insurers on insurance Self-Network Platform (ISNP). Some of the guidelines are as follows.

Internal Monitoring, Review and Evaluation of Systems and Controls

An ISNP granted permission shall ensure:

- That the integrity of the automatic data processing systems is maintained at all times.
- Privacy of data is maintained.
- Adequate internal mechanisms for reviewing, monitoring and evaluating its controls, systems, procedures and safeguards.

(Source IRDA Guidelines)

Review of Operations of the ISNP

- A review of the controls, systems, procedures and safeguards put in place by the ISNP, shall be carried out, at least once a year, by an external certified information system auditor (CISA) or Chartered Accountants with DISA (ICAI) qualification or CERT-IN expert at their cost.
- The scope of such external audit of the ISNP shall be as prescribed by the Authority from time to time.

- In addition, the applicant shall ensure compliance to information security management system standard of the international Organization for Standardization or the international Electroechnical Commission or its equivalent of the ISNP, at all times, by having an annual review of the systems.
- The applicant shall place the report of the CISA auditor or DISA (ICAI) qualified expert or CERT-IN expert and the information security management system of the ISNP before the Board or its sub-committee for their observations.
- Any adverse findings which are material to the operations of the ISNP of the applicant or which result in financial loss to the policyholders shall be reported to the Authority along-with an action plan to address them.
- The Authority has the right to undertake by itself or through an external agency an independent inspection into the affairs of the ISNP at any time if it so desires.

(Source IRDA Guidelines)

Conclusion

There is no doubt about this fact that society is becoming on-demand and leaving customers impatient and in constant need. Customers want 24-7 service and no inefficiency or buck passing. They want fast and efficient claims processing and do not care about internal constraints, system issues or individual roles. So the Insurers have no option but to employ a flexible and empowered workforce who can assist customers instantly through peaks and troughs in claim volumes.

This is also one of the fact that younger customers are happy to share more data with their insurers but do not want to repeat their information at multiple points in their policy and claim journey so going forward this is must for insurers to ensure that their Systems is integrated, data secure and shared and their staff is able to provide personalized, relevant and real time experiences along the journey.. While the new technology may be bad news for human underwriters, it is great news for insurance companies and their customers. Use of Technology in insurance is more good than bad. It has revolutionized the general insurance industry and changed the way clients interact with the service staff. It is also clear that technology is essential. Moreover, digital transformation or advancement of technology does not spell the end of intermediaries or brokers. It is very important to note that technology has also created a new types of intermediaries such as Web Aggregators and all those customers who want to purchase complex commercial risk will require the expert advice of agents and brokers, Moreover as per IRDA Guidelines, some of the products which are filled under use and file system cannot be sold online and Only retails products which comes under file and use can be sold online.

The future of all the Insurers will depend heavily upon this fact that what type of technology they uses for their Customers and it is also important for them to note that how well they use it. The better and more effective technology insurers will use in future, greater will be the growth for them.

"Insurers are moving towards customized, usage based, real time coverage models and moving away from a risk-based underwriting approach to a risk management approach.

Insurers that succeed in future will be those who will monitor and respond to emerging technologies and consumer changes and will leverage big data and analytics. These Insurers will also have to ensure flexible, engaged and autonomous workforce.

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Merit Winner

Technical Paper Essay Competition (Health)

Artificial Intelligence and Health Insurance

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Abstract

Artificial Intelligence is the process of designing machines that have the ability to think on their own and do not require human command to work. It is the intelligence of machines. The debate about the importance of artificial intelligence in our life has gained momentum manifold times in recent years.

What is Artificial Intelligence? This is the question that needs to be answered before delving into its benefits. It is the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. There are numerous ways in which Artificial Intelligence, or AI benefits the humankind but the general benefit is that it replicates decisions and actions of humans without human shortcomings, such as fatigue, emotion and limited time. I think there are a vast number of ways that people can benefit from AI but the most used/common way that AI is impacting business is through its application in marketing.

The most beneficial use for AI in health insurance sector is the supported systems that enhance care – for instance, in the development of customized offers for patients suffering from chronic diseases or for identifying clinical pathways that fail to adhere to guidelines. Yet artificial intelligence is capable of more. With the help of these systems Artificial Intelligence can help case managers to efficiently screen cases, evaluate them with greater precision and accuracy, and can make informed decisions. Hospital claims management is another area that stands to benefit. A look at any situation in any hospital will illustrates the extent of the possible gains. The cost of inpatient treatment amounts to millions and billions of rupees worldwide, however, a certain

percentage of all claims received are incorrect. Reliably identifying and correcting these incorrect claims would save a lot of time, money, and effort of all stakeholders/ health insurers and insurance providing agencies. With the help of Artificial intelligence, Insurance service providers can achieve this objective.

When it comes to the applications of Artificial intelligence today, these use cases may well just be the tip of the iceberg. By making sense of the data available, artificial Intelligence and machine learning can help answer a lot of questions in healthcare and health insurance. While these new technologies are sure to influence the healthcare and health insurance space, how fast do they make an impact and to what extent, is something that only time will tell.

Introduction

Artificial Intelligence is the process of designing machines that have the ability to think on their own and do not require human command to work. It is the intelligence of machines. The debate about the importance of artificial intelligence in our life has gained momentum manifold times in recent years. And the ongoing debate is whether it is a boon or a bane to future of human existence.

The questions that arise with the rise in automation technology relate to the significance of law in keeping technology within the bounds of human governance and control. From over 200 years ago when Dr. Frankenstein created his brainchild, a monster, the issues of human control and governance have been arising.[1] On the other hand lie questions of morality that even if we develop a legal regime of governance, should we be providing machines with the same intelligence as humans? Can we let a machine have a mind of its own? Can we subordinate ourselves to the 21st Century Frankenstein? If yes, then to what extent can these machines be held responsible for their acts?

Machine and its Brain

The question of ascribing legal responsibility to machines stems from another issue i.e. the capability of machines to think. This has been an issue of debate for long now and dates back to the differences in dualist and materialist views of mind. The dualist view (substance dualism) projects mind as a non-physical substance while the body is projected as a physical one.[2] Both of them can affect each other. Another form of dualism (property dualism) states that mental phenomena are non-physical entities of physical phenomena.[3]

One of the most famous proponents of dualism, René Descartes, in his 1637 ***'Discourse on the Method'*** [4] writes:

"If any such machines had the organs and outward shape of a monkey or of some other animal that doesn't have reason, we couldn't tell that they didn't possess entirely the same nature as these animals; whereas if any such machines bore a resemblance to our bodies and imitated as many of our actions as was practically possible, we would still have two very sure signs that they were nevertheless not real men. (1) The first is that they could never use words or other constructed signs, as we do to declare our thoughts to others. (2) Secondly, even though such machines might do some things as well as we do them, or perhaps even better, they would be bound to fail in others; and that would show us that they weren't acting through understanding but only from the disposition of their organs."

Thus, dualists deny the possibility of artificial reproduction of mind.[5] Materialist philosophy, on the other hand, argues that only matter exists and all phenomena, even mental phenomena, are the result of interactions of matter.[6] Thus, the mind is just the working of

> The most beneficial use for AI in health insurance sector is the supported systems that enhance care – for instance, in the development of customized offers for patients suffering from chronic diseases or for identifying clinical pathways that fail to adhere to guidelines. Yet artificial intelligence is capable of more. With the help of these systems Artificial Intelligence can help case managers to efficiently screen cases, evaluate them with greater precision and accuracy, and can make informed decisions. Hospital claims management is another area that stands to benefit. A look at any situation in any hospital will illustrate the extent of the possible gains.

1. Mary Wollstonecraft Shelley, Frankenstein (3rd Ed., 1869). 2. Lilli Alanen, Descartes's dualism and the philosophy of mind, Revue de Métaphysique et de Morale, 94e Année, LEO STRAUSS HISTORIEN de la PHILOSOPHIE, 391, 410 (Juillet-Septembre 1989). 3. Id., at 409. 4. René Descartes, Discourse on the Method of Rightly Conducting one's Reason and Seeking Truth in the Sciences, 146 (1637) 5. James H. Fetzer, Minds and machines,4, SEHR, 39, 41 (1995). 6. J. J. C. Smart, Materialism, 60, The Journal of Philosophy, 45, 53 (1963).

the physical brain.[7] In essence, materialism leaves open the possibility of artificially produced minds.

There have been several debates likewise, regarding the thinking capabilities of machines. Alan Turing, widely considered to be the father of theoretical computer science and artificial intelligence, in his famous Turing test proposed that if a human evaluator is able to distinguish between a human and a machine that is designed to generate human-like responses (in text, not in speech), the machine fails the test. If the evaluator cannot reliably tell the machine from the human, the machine is said to have passed the test. Turing, in his paper, answers nine common objections against Artificial Intelligence and concludes by speculating about a time when machines will compete with humans on numerous intellectual tasks and suggests tasks that could be used to make that start.

On the other hand, a rather sophisticated and skeptic representative of the conservative wing- Hubert Dreyfus, in his works, Alchemy and AI and What Computers Can't Do , identified that early AI researchers perceived human intelligence as a product of manipulation of symbols. According to him, this was based on four philosophical assumptions:

1. The Biological assumptions that the brain processes information in discrete operations by way of some biological equivalent of on/ off switches.
2. The psychological assumption that the mind can be viewed as a device operating on bits of information according to formal rules. This flows from both idealist as well as empiricist way of thinking and projects thinking as mere data processing wherein the involvement of the "processor" plays no essential role.
3. The epistemological assumption that all knowledge can be expressed in the form of Boolean functions or logical relations, i.e. all knowledge can be formalised.
4. The ontological assumption that all relevant information about the world, everything essential to the production of intelligent behavior, must in principle be analyzable as a set of situation- free determinate elements.

While Dreyfus admits that Computer technology has been most successful in simulating the so-called higher rational functions-those which were once supposed to be uniquely human, he argues that not all information can be formalised and the non-formalisable form of information processing can be carried out only in embodied beings. He concludes that "fully intelligent behavior would be impossible, in principle, for a digital machine".

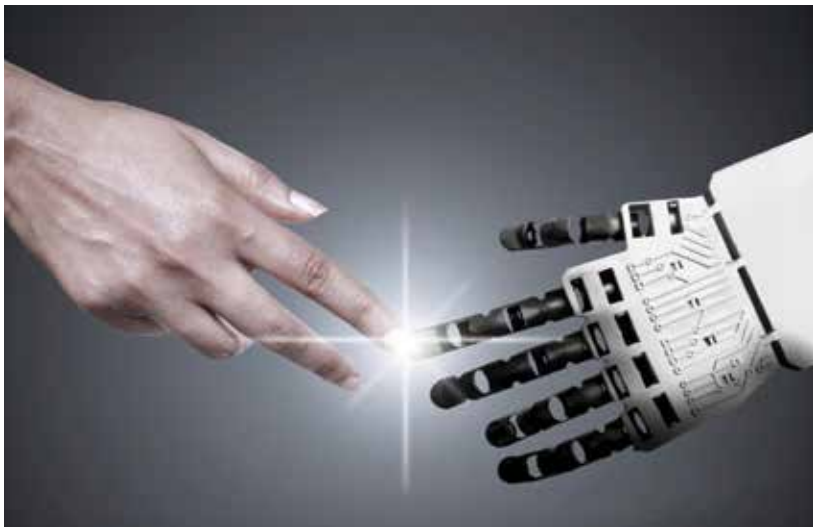
Even Dreyfus' views are not free from criticism and it has been termed that Dreyfus' claims are limited to GOFAI (Good Old Fashioned AI). There have been several agreements and disagreements regarding the cognitive abilities of machines. From Roger Penrose to Gerald Edelman, there have been numerous attempts to deny that a strong AI can ever be formed. Though the old optimism regarding AI seems to have been resurrected, the qualities of sentience and sapience are yet aloof from Artificial Intelligence regime. Responsibility, transparency, auditability, incorruptibility, predictability are some of the factors that modern researchers find desirable to make machines more human-like i.e. to have an algorithm to replace human judgment of social functions.

Whatsoever be the arguments, optimism prevents us from denying that a possibility exists that someday we can have a very strong AI which would be outside the realms of human governance and control. As Cicero rightly points out action and life can proceed quite satisfactorily with "nothing to follow but probability", and anything that seems even slightly probable cannot be forgone. Even though the chances might be very low and the time frame too long, the slight probabilities need us and push us to be prepared to face the rising Frankenstein.

But we cannot concur with this very idea as objections and speculations has been raised against development of anything new that was previously considered to be impossible. The very idea to create an artificial intelligence is to make the human life easier. Researchers of artificial intelligence want to bring in the emotional quotient to the machines along with the general intelligence. Artificial intelligence is complex in nature. It uses very complicated mixture of computer science, mathematics and other complex sciences. Complex programming helps these machines replicate the cognitive abilities of human beings.

To delve further in detail as to how AI is actually benefitting the healthcare system, we must first understand what artificial intelligence (AI) is. Artificial intelligence (AI,

7. *V. J. McGill, The Mind-Body Problem in the Light of Recent Psychology, 9, Science & Society, 335, 359 (1945)*



also machine intelligence, MI) is intelligence demonstrated by machines, in contrast to the natural intelligence (NI) displayed by humans and other animals. In computer science AI research is defined as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals.[8]

Artificial intelligence is one of the current megatrends that is emerging from the broader digitization of society and the economy. So far, these "smart" Artificial intelligence or AI technologies have mainly attracted attention in the e-business, automotive, and consumer goods sectors. Siri, the automated voice on Apple's iPhone, or Alexa, Amazon's electronic shopping assistant, are two examples shaping public perception. Automated image recognition systems and self-driving cars are making a mark as well. The private sector has long recognized the potential inherent in the new technologies.

Self-learning software and cognitive systems can be found operative throughout the value chain: forecasting and pricing tools for purchasing and inventory management, chat-bots for customer service, delivery drones for the last mile. Some of them are also on the verge of deployment in future. AI applications can help companies to optimize services and lower costs, accelerate processes, and make better decisions.

Benefits of Artificial Intelligence (AI)

There are numerous ways in which Artificial Intelligence, benefits the humankind but the general benefit is that it replicates decisions and actions of humans without human shortcomings, such as fatigue, emotion and limited time. I think there are a vast number of ways that people can benefit from AI but the most used/common way that AI is impacting business is through its application in marketing.

- ***Error Reduction:*** Artificial intelligence, or AI can help in reducing error and to achieve accurate results with a greater degree of precision.
- ***Difficult Exploration:*** Due to the programming of the robots, they are more laborious and work harder with greater responsibility. Moreover, they do not wear out easily as any human does. These complex machines can also be used for overcoming the human limitations.
- ***Digital Assistants:*** Many highly advanced organizations use digital assistants for the purpose of interaction with users, which in turn saved the need of human resources. The complete absence of the emotional side in robots, makes them think logically and take the right program decisions. Emotions are associated with moods which can cloud judgment and affect human efficiency. The same can be completely ruled out for machine intelligence.
- ***Repetitive Jobs:*** With the help of machine intelligence, jobs which are monotonous/repetitive in nature can easily be carried out. Machines do not provide unstable results when exposed to repetitive work, they think faster than humans and can be put to multi-tasking. Machines with the help of artificial intelligence can be employed to carry out dangerous tasks. Their parameters, unlike humans, can be adjusted as their speed and time are calculation based parameters only.
- ***Medical Applications:*** Robotics is used often in helping patients to achieve desired results with a very low amount of risk as robots are way more precise than humans. A popular application of artificial intelligence is radiosurgery. The method of radiosurgery is used in operating tumors and this can actually help in the operation without

8. https://en.wikipedia.org/wiki/Artificial_intelligence

damaging the surrounding tissues.

- ***No Breaks:*** Unlike human beings, machines do not require frequent breaks and refreshments in between their work. They are programmed in a way so that they can function for long hours and unlike humans and can continuously perform without getting bored or distracted or even tired.

Artificial Intelligence in Health Insurance

A similar development is taking place in the healthcare sector, although exploration of the possibilities that artificial intelligence offers in the field of medical care and management is in its early stages. AI is increasingly being used for early detection of any ailments that is present in the patient or may develop at a later stage. These systems are supported by algorithms or in certain cases automated recognition of patterns in patient data.

The most beneficial use for AI in health insurance sector is the supported systems that enhance care – for instance, in the development of customized offers for patients suffering from chronic diseases or for identifying clinical pathways that fail to adhere to guidelines.

Yet artificial intelligence is capable of more. With the help of these systems Artificial Intelligence can help case managers to efficiently screen cases, evaluate them with greater precision and accuracy, and can make informed decisions. Hospital claims management is another area that stands to benefit. A look at any situation in any hospital will illustrates the extent of the possible gains. The cost of inpatient treatment amounts to millions and billions of rupees worldwide, but on average, however, a certain percentage of all claims received are incorrect. Reliably identifying and correcting these incorrect claims would save a lot of time, money, and effort of all stakeholders/ health insurers and insurance providing agencies. With the help of Artificial intelligence, Insurance service providers can achieve this objective. The conventional approach to claims management which is based on an inflexible rule book has been made obsolete by Artificial Intelligence which uses intelligent algorithms that learn from previous cases and continuously evolve. Such a system can systematically identify and correct these errors all the while avoiding unnecessary or ineffective interventions.

There is another way in which machine learning can help here. It's clearly in the insurers' interest to have their healthier members satisfied with their coverage and take advantage of their preventative benefits. Intelligence in the health care system can trigger outreach that explains the parameters of the provider network, or have a (human) healthcare assistant do likewise, by phone. This can help establish trust and a rapport that leads members to be more comfortable taking advantage of their coverage and be proactive in their own care.

The artificial intelligence can be used in yet another way to benefit both the insurer and the insured. This can be done by cost minimization. The question now comes that how can cost be reduced by the use of artificial intelligence. By continuous assessment/evaluation of the health records of the insured, AI by way of scientific analysis can ascertain the amount of insurance which the insured should take, this would not only reduce the amount of premium payable but will also reduce the medical costs when actual need arises. This would be beneficial for the customers and thus have a direct bearing to the company's activity.

There is another way in which machine learning can help here. It's clearly in the insurers' interest to have their healthier members satisfied with their coverage and take advantage of their preventative benefits. Intelligence in the health care system can trigger outreach that explains the parameters of the provider network, or have a (human) healthcare assistant do likewise, by phone. This can help establish trust and a rapport that leads members to be more comfortable taking advantage of their coverage and be proactive in their own care.

This whole calculus of analyzing engagement data, medical history, conditions and "life context," and then engaging, has some lingo that

goes along with it: determining the "next best action." That's a big part of what AI can do, but this technology is by no means on the back-end only. Health Insurance Companies can offer a mobile app as well that members can use to communicate with both health assistants and nurses -- something far more palatable in this era as compared to making an appointment for an office visit and then wasting hours and hours of one's time out of the day in travel, waiting and appointment time.

There are many ways that virtual assistants with the use of artificial intelligence have begun transforming consumer interactions within health insurance sector. Some of the major benefits are:

Helping Customers Choose the Right Plan

Research have shown that, when it comes to servicing the customers, nearly in every demographic and industry, not just insurance, the consumers overwhelmingly prefer self-service by talking with a live agent. But this process of self-service would typically require a customer to slog through instructions and other online collateral that is available, which is what every customer intends to avoid. In a 2016 survey conducted by the research firm AYTM, it was found that about 89 percent of consumers worldwide said that they prefer a virtual agent to get information instead of searching through a company's website or mobile app. This preference is good news for providers who are exploring more efficient and effective ways to encourage customers to join their institution. These virtual assistants help the companies to save money by reducing the manpower necessary at the customer care center and in turn can engage them to provide escalated and fast services to people with complex inquiries. This is the reason it is gaining popularity and so many companies are implementing virtual assistants to save money and time without losing efficiency. Moreover, these virtual assistants when deployed in phone channels with the help of the interactive voice response (IVR) system and/or mobile app can be paired with voice biometrics to eliminate another pain point for the customers, which is remembering PINs and passwords. The human voice is as unique as a fingerprint, and can be used for identification purposes, which is why so many banks and other businesses are using voice biometrics to authenticate customers which not only is helpful for the customers but also for the companies as it will reduce the risk of fraudulent use of sensitive data of the customers, which is a win-win situation for both the customers and the company. According to a recent survey conducted by AYTM, it was found that 83 percent of consumers preferred alternatives like voice biometrics, for authentication which reduces their pain to remember passwords. It also means customer care agents spend less time looking for member portal password resets, which frees them to focus on other important customer needs.

Managing Chronic Conditions More Effectively

Service providers are well aware that biometric data is key for better managing chronic conditions, but when it is done by the nurses and other skilled staff, it is the wastage of their precious time which can be utilized in much useful ways. Advancement in technology has now enabled the patients to directly collect the data to be collected through self-service with the help of wearable devices and in-home devices. Virtual agents play an important role in this by providing support to patient inquiries about the readings and other issues. These virtual agents can analyze the results and then decide whether they are able to satisfy the patient's needs or they need to escalate the problem to a human, such as a care manager or physician.

Proactive Engagement Boosts Medicare Star Ratings

The insurance service providers have the enormous opportunities such as text messages, automated voice calls and emails to cost-effectively boost medical test compliance to be done by the patients, such as for diabetic eye and foot exams, mammograms and more. This in turn would increase the star rating performance, as everybody loves extra bit of care.

Conclusion

Artificial Intelligence is the process of designing machines that have the ability to think on their own and do not require human command to work. It is the intelligence of machines,

and incorporating it in the process of hospital claims management offers multiple benefits at once, not just for insurers but also for patients, given the saving potential. In short, the shift from earlier method of claims management which was based on rigid rule books to smart algorithms will no doubt lead to greater efficiency and valid decisions making– thus relieving the burden from the shoulders of both the stakeholders and the delivering savings.

Thanks to this AI, now the administration staff no longer have to check every claim deemed unusual, but can instead focus their time and energy on those cases that actually require their attention. An analysis conducted (based on historical test data) shows that the algorithm's success rate closely approximates the ideal value – that is, the system correctly filters out almost all claims where the claim amount could be reduced.

Thus this system of Artificial Intelligence not only simplifies the overall claims management procedure and accelerates it, but also enhances its quality: eliminates the additional costs for redundant audit and rejection processes, and in turn the available resources can be focused on the "right" cases, i.e., those that are truly relevant for audits. As a result, this process helps the service provider by reducing the need of the administration staff and auditors which can be used in other areas thus reducing the capital spending of the company which could be used for other purposes, thus further increasing their prospects of success.

Pamela McCorduck, reporting that Dreyfus would never accept that AI was possible, very beautifully summed up the reactions to progress in the field of artificial intelligence :

"Predisposition, or world view-call it what you will have more to do with opinions on this scientific question than evidence."

This is significantly true of the huge world of Artificial Intelligence that lays before us today. Man and machine are discontinuous conceptions. Problems that arise from dealing with machines become ever more complex as technology advances and as we are made to depend increasingly on unattended intelligent machines that displace humans in everyday transactions.

Considering that a new year of uncertainty and change has arrived for the industry of health plans, the good news for consumers and service providers alike is that artificial intelligence has, and will continue to be, a proven way to maximize savings, outcomes and satisfaction. Therefore, there are unlimited number of ways in which AI will continue to help in improving the experience for consumers on the health insurance in the coming years.

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Merit Winner

Technical Paper Essay Competition (Micro)

Achieving Sustainable Development Goals - Role of Micro insurance

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Abstract

"Give a man a fish; you have fed him for today. Teach a man to fish; and you have fed him for a lifetime."

Sustainable development means a development that takes into consideration the present needs as well as the likely prospects, without compromising the needs of the future generations. The concept of sustainable development can be interpreted in many different ways, but at its core it is the inter-generational stability of the economic, social environment and acknowledgment of future concerns throughout our decision making process. Sustainable development provides an approach to making better decisions on the issues that affect all of our lives. By incorporating plans as regards health and family sector into the planning of new organisations, we can make sure that the community has access to health care facilities at their doorstep. This is where the role of Insurance sector comes into action. Insurance plays a vital role in every economy for the

Sustainable development means a development that takes into consideration the present needs as well as the likely prospects, without compromising the needs of the future generations. The concept of sustainable development can be interpreted in many different ways, but at its core it is the inter-generational stability of the economic, social environment and acknowledgment of future concerns throughout our decision making process.

quality of life to their citizens. Access to insurance may be an important factor helping combat poverty and can help poor people manage critical risks such as death in the family, illness, or loss of income or property. Micro Insurance helps in management of risk factor of the minimal income and vulnerable group preventing them from falling into the poverty trap. Hence it is believed to be a powerful risk management system. But not much is known about outreach and efficacy of micro insurance across regions and groups.

Micro insurance is a risk management tool to prevent and protect low income groups from and against specific accidents in exchange of regular premium payments proportionate to the likelihood and the costs of the risks involved.[1]

In a country like India where more than 65% of the population live in poverty it is impeditive for them to get financial enablement of inclusive policies to achieve sustainable development. India is largely agrarian and rural based. Even after 71 years of independence and a lot of urbanisation India still fights to make ends meet for it's over populated below the poverty line population. As it is India is has a very low insurance penetration and the situation is far more complex for the poor section of the society. Though the insurance can provide risk coverage, insurance industry has failed to achieve its optimal attention to the target customers. Micro insurance is the only way out to be the enabling factor to encourage the section of the people to think big and take out their self-entrepreneurship quality by arranging a backup for their economic risks. It is a continuous process and would have trickledown effect on the society which would help spreading awareness all over the nation quickly. The objective of the paper is to study the scope of micro insurance in India, within its prevailing legal framework, and its better implementation and to expand scope for further covering of not only max numbers but the overall population of the country and indemnifying for their loss also adequately providing economic security to them. Micro insurance could, therefore, provide greater economic and psychological security to the poor as it reduces exposure to multiple risks and cushions the impact of a disaster. The rural masses, therefore, need a conviction that buying insurance is more worthwhile to them than being without it. The rural as well as the urban low income masses, therefore, need a conviction that buying insurance is more worthwhile to them than being without it. The Insurance Regulatory and Development Authority in order to promote more professional and expansive risk management of the poor and to make micro insurance to be integral part of Indian insurance system has notified the 'Micro Insurance Regulations 2005'. As the paper seeks to find out broader scope of micro insurance in India it also looks into the externalities that are restricting the spread of it.

Introduction

Micro insurance is the protection of low-income people against specific disasters (such as fire, accident, ill health etc.) in exchange for regular premium payments proportionate to the livelihood and cost of risk involved.

In fact, the poor are more prone and exposed to major risks including illness, accidental death and disability, loss of property due to theft or fire, agricultural losses and disasters of natural and manmade varieties.

Micro insurance is an attempt to provide insurance coverage to the poor of both rural and urban society. It aims at penetrating into the market of the most vulnerable group thereby making insurance affordable to the mass. It is said that educated and middle income group people and rich people have all the access to different kinds of financial services including insurance. In some of the cases insurance is paid by employer such as key man insurance, employer employee insurance. But so far as poor people are concerned, they do not have access to financial

1. *Churchill C. (ed.) (2006). Protecting the Poor: A Microinsurance Compendium. Geneva: ILO.*

service, in most cases their income is irregular and fluctuating. Moreover, poor people, especially rural people, have to take several kinds of loan (such as crop loan, personal loan etc.) for their living, from financial institutions and Government agencies. To protect the interests of financial institutions, in case of any mishap to loan taker insurance protection is required, such as health insurance, accident and property insurance. In short, micro insurance turns reactive risk-management practices into pro-active risk-management practice.

Backdrop

India is developing with leaps and bounds. Our country is blessed with a workforce that is competent, technologically advanced and their intelligence to adapt to situations and their grip on the English language even in technical areas like medical transcription has made India the home to back office operations of many multinational corporates. Still, India is said to be largely agrarian and rural based. The landless rural population and urban unorganized sector form a large portion of the Indian Economy and they live a dreary existence, below the poverty line. If at all they gain employment, they are unable to sustain the same as they are afflicted with ills of malnutrition, starvation and sickness and ills that arise from their state. Insurance, health care and the capacity to fend against the malaise are not even thought of.

Mohammad Younus, Chairman of Gramen Bank Bangladesh won noble prize for its innovative micro finance scheme where small credit was given to poor at an affordable rate of interest which had to be collected in easy instalments. Taking a cue from this innovative scheme, the Government of India has also extended micro finance schemes to its rural poor. It was back in October 2002 that BASIX, a livelihood promotion institution, began providing life insurance cover to customers who obtained micro credit. This early form of micro insurance in India was in the form of a group policy called Credit Plus from AVIVA. The policy covered its borrowers for 1.5 times of the loan amount taken during the loan period. The cost of the insurance priced at Rs. 8.61 per thousand sum insured. Three years later in 2005, the insured's combined years of age had increased to 100000, coupled with the product continued positive performance the premium rate dropped to Rs. 3.98.

Insurance Regulatory and Development Authority has also come out with IRDA (micro insurance) guidelines for orderly micro insurance business and for protecting policyholders from malafide intention of insurer and market intermediary and to fix insurance amount and frequency of premium etc.

Key Statistics

India's 2018 population is estimated at 1.35 billion based on the most recent UN data. While the number of Indians living in urban areas has increased over the last two decades, about 67% of people still live in rural areas.[2] India consists of almost 60% of total population belonging from age group of 15-54 years. India is a very young country. Half of its population is under the age of 25. Two-thirds are less than 35. As a recent Bloomberg News analysis discovered, India is likely to have the world's largest workforce by 2027, with a billion people aged between 15 and 64. Essentially, India's going through the sort of demographic transition that many other countries have, except on a far larger scale and by 2020, it is forecast to be the youngest country in the world, with a median age of 29. That means a growing pool of buyers for goods and services, and a growing middle class.[3] Total 80% of India's poor live in rural areas. This is huge figure to create a challenge before Govt. to look forward to a growing economy. To address the issue financial enabling factor of that population is required through continuous encouragement in small scale business financing support through micro insurance. If the population manage to gather to utilise India's demographic dividend self-sustaining business model is the ultimate solution as such huge no of employment can't be generated by Govt. or private industries. To achieve the goal Govt. and financial institutions require formulating risk support mechanism. The generation in its 50s in China today is the one that has lifted the country from poverty to middle-income status; the generation in its 20s in India today, this vast ocean of subcontinental millennials will have to do the same for India.

Currently, India accounts for nearly 65% of Asia's micro insurance market. This directly points micro insurance sector towards its key profitability which is based upon 'Low margin – High volume' revenue model.[4] Some 37 million poor families availing of the benefits provided by the Rashtriya Swasthya Bima Yojana or the national health insurance initiative the flagship programme of the government for health insurance.

2. http://worldpopulationreview.com/countries/india-population/ 3. https://blogs.thomsonreuters.com/answerson/indias-demographic-dividend/
4. http://www.dqindia.com/micro-insurance-next-big-innovation-india/

India is the second most populated country in the World and home to 17% of world's population but the Indian insurance market's share in the global insurance premium is not even 1.5%. Indeed, there are 52 insurers but the penetration remains abysmally low. The life insurance penetration is 3.4% and the penetration of non-life insurance is even lower 0.64-0.7%. In non-life insurance, motor vehicle insurance has 43.89% of the market share while health insurance holds a distant second position with 28.49% market share. Yes, Indian consumers value their cars more than their lives! Only 1.5-2% of total health care expenditure is covered by the insurance providers. One instance of illness, accidental disability or death of the bread winner can push a family deep into a financial distress. The people at the so-called bottom of the pyramid, working in agriculture and other unorganized sectors, are the worst hit under such circumstances. Agriculture and allied activities employ 58% of India's population. There are many reasons why agriculture is highly risk prone. Irrigation is difficult in small and fragmented land holdings and although India is the second largest irrigated country of the world after China, only one-third of the cropped area is under irrigation. Being mostly rain fed the quantity and quality of output is often beyond the control of the farmers and often floods and droughts play havoc, leading to spate of suicides by farmers. The highly-subsidized government-backed crop insurance scheme has so far covered 26% of farmers. This means almost three-fourth of the farming community is outside this safety net. On top of that, many farmers have high indebtedness to non-formal sources as formal financial intermediaries are always not forthcoming to give them money.[5] Furthermore, it was found that the average insurance literacy was only (36 .75 %).[6] almost 90 percent of the Indian population is uninsured. For India the annual potential market size of micro insurance is around USD 1 billion.

The breakup is as follows: Life Insurance - USD 0.24 to 0.32 bn per year; Health - 0.20 to 0.28 bn per year; Crop - 0.20 bn per year; and Livestock - 0.1 to 0 .12 bn per year. Around that 90% of the Indian population constituting of 950 million people are not covered by insurance and 88% of Indian labor force are still left out from any kind of insurance.[7]

Regulations Regarding Rural and Social Sectors Obligations, 2002

These regulations oblige insurance companies to procure insurance business on a quota basis from pre-defined rural areas and social sectors, with the latter defined as "unorganised workers, (and) economically vulnerable or backward classes in urban and rural areas". The quotas are phased up over time:

- 5% of all life insurers' policies must be from rural areas in year 1, phasing up to 16% in year 5.
- For non-life insurers, 2% of total gross premiums underwritten must be from rural areas in year one, phasing up to 5% in year 5.
- In the social sectors, each insurer has to maintain at least 5,000 policies in year 1 rising to 20,000 in year 5, for both life and general insurance. An insurer failing to reach the targets incurs a financial penalty. Repeated violations could prompt IRDA to revoke such an insurer's license.[8]

These regulations embody IRDA's commitment to extending the reach of the insurance sector. They create a specific category of micro insurance agents to distribute micro insurance products on behalf of registered insurers. Micro insurance products are defined to comprise both life and general insurance products. The definition is set according to minimum and maximum benefits, the minimum/maximum term of

5. https://www.pwc.in/assets/pdfs/publications/2017/rural-and-microinsurance-perspective.pdf 6. https://www.researchgate.net/publication/320492194_Microinsurance_in_India_Insurance_literacy_and_demand 7. UNDP(2007) 8. The Insurance Regulatory and Development Authority (Obligations of insurers of rural social sectors) Regulations

the insurance policy and minimum/ maximum age [9] entry, as well as certain simplicity requirements. The specifications vary according to the type of cover provided. Thus far, twelve life and eight non-life micro insurance products have been filed with IRDA. All sales of micro insurance products will count towards insurers' rural and social sector obligations (though rural and social insurance do not necessarily constitute micro insurance). Providers of such products do not receive any prudential or institutional concessions. The demarcation requirement between life and nonlife insurance is relaxed for micro insurance in that the regulations allow for the bundling of life and nonlife elements in one single product, provided that a life and non-life insurer must respectively underwrite the life and non-life risks underlying the product.[10]

Insurance Regulatory Development Authority (IRDA) of India, the regulatory body to channelize insurance industry in the country has developed a special category of insurance products to cater to the needs of the vulnerable section of the society. These insurance products are called as micro insurance policies.

The IRDA Micro Insurance Regulations, 2005

It defines a micro insurance policy as a life or non-life insurance policy. On 13th March 2015, the Insurance Regulatory and Development Authority (IRDA) India introduced the revised Micro insurance Regulation (2015) which supersedes the existing regulations introduced in 2005.

The new regulation makes a number of important amendments including to the guidance on product development, adjusting the risk coverage levels, enabling more organisations to distribute micro insurance products and the training of micro insurance agents and their specified personnel. It also introduces a change in the existing compliance norms for insurance companies which had been established under the Rural and Social Sector Obligations (2002). Of particular note is the introduction of a new product category called micro variable life, a hybrid product category which offers the customer the benefit of systematic contribution with term insurance coverage.

With respect to distribution, the new regulation enlarges the current range of institutional intermediaries to include Reserve Bank of India (RBI) regulated Non-banking Financial Companies, District Cooperative Banks, Regional Rural Banks and Urban Co-operative Banks, Primary Agricultural Cooperative Societies registered under the Cooperative Societies Act, and Business Correspondents who have been appointed in accordance with the RBI Financial Inclusion Guidelines.

Objective of the Study

To study the business performance of micro insurance industry.

To study the regulation passed to run the micro insurance business in India.

To study the present status of the micro insurance Industry.

Methodology

It is an analytical study of performance of micro insurance business in India. The data used in the analysis collected from annual report of insurance regulatory and development authority. Some statistical tools will be applied to analyze the data. To present the data and study in a proper manner computer tools will also apply.

Micro Insurance Delivery Model

In general, there are four main methods for offering micro insurance[2] the partner-agent model, the provider-driven model, the full-service model, and the community-based model. Each of these models has their own advantages and disadvantages.

Partner agent model: A partnership is formed between the micro insurance (partner as MFI) scheme and an agent (insurance companies), and in some cases a third-party healthcare provider. The micro insurance scheme is responsible for the delivery and marketing of products to the clients, while the agent retains all responsibility for designing and development. In this model, there is benefit to the mico insurance scheme due to limited risk. But again the disadvantage is their limited control. Micro Insurance Centre is an example of an organization using this model.

1. Vimo SEWA and ICICI Lombard
2. Shepherd and United India Insurance Company (UIIC)
3. Karuna Trust and National Insurance Company (NIC

Full service model: In this model, the micro insurance scheme is in charge of everything; both the design and delivery of products to the clients, working with external healthcare providers to provide the services. The overall responsibility is with the insurance scheme itself. This model

9. Gazetted in November 2005. Available at: www.irdaindia.org/regulations
10. This requires two such insurers to enter into a contractual relationship for the provision of the composite microinsurance product via a microinsurance agent

has the advantage of offering micro insurance schemes full control, yet the disadvantage is of higher risks.

Provider-driven model: The healthcare provider is the micro insurance scheme, and similar to the full-service model, is responsible for all operations, delivery, design, and service. There is an advantage once more in the amount of control retained, yet disadvantage in the limitations on products and services.

1. Voluntary Health Services (VHS), Chennai.
2. Vimo SEWA operated its health insurance under this model from 1996 to 2002.
3. Yeshasvini Trust is a mixture of the charitable insurance model and the provider-driven model.

Community-based/mutual model: The policyholders or clients are in charge, managing and owning the operations, and working with external healthcare providers to offer services. This model is advantageous for its ability to design and market products more easily and effectively, yet is disadvantaged by its small size and scope of operations.

Union des Mutuelles de Santé de Guinée Forestière (UMSGF)

1. ILO's STEP programme
2. French NGO CIDR SHEPHERD
3. Organisation for Development of People
4. Solapur Cooperative Federation
5. Bihar Milk Cooperative Federation
6. Mahasemam Trust 8. BAIF

Micro Insurance Types

Broadly micro insurance can be categorised in the following segments i.e

Life Micro Insurance: Any term insurance contract with or without return of premium or Any endowment, health insurance contract, with or without an accident benefit rider either on individual or group basis.

General Micro Insurance: Any contract covering the belongings such as hut, livestock, any personal accident as hut, livestock, any personal accident contract, or tools or instruments contract, or tools or instruments either on individual or group basis.

Life Insurance: Life insurance pays benefits to designated beneficiaries upon the death of the insured. There are three broad types of life insurance coverage: term, whole-life, and endowment. Term life insurance policies provide a set amount of insurance coverage over a specified period of time, such as one, five, ten, or twenty years. Whole life insurance is a cash-value policy that provides lifetime protection. This is hardly offered in low-income markets in the developing countries. Endowment life insurance pays the face value of insurance if the policyholder dies within a specified period.

Health Insurance: Health insurance provides coverage against illness and accidents resulting in physical injuries. MFIs have realized that expenditures related to health problems have been a significant cause of defaults and people's inability to continue improving their economic conditions. Several MFIs have therefore, either started their own health insurance programs or have linked their clients to existing programs.

Property Insurance: Property insurance provides coverage against loss or damage of assets. Providing such insurance is difficult because of the need to verify the extent of damage and determine whether loss has actually occurred.

Disability Insurance- Disability insurance in most cases is tied to life insurance products. It provides protection to the policy holder and her family, should she or some of her family suffers from a disability.

Crop Insurance: Crop insurance typically provides policy holders protection in the event their crops are destroyed by natural calamities such as floods or droughts. To improve the ability of rural farmers to repay loans from agricultural development banks (ADBs), many governments developed crop insurance programs in the 1970s and 1980s.

Disaster Insurance: Disaster insurance is through a reinsurance arrangement that broadens the risk pool across countries and regions, and protects insurers against catastrophic losses.

Unemployment Insurance: This insurance provides cash relief to individuals who become unemployed involuntarily and who meet certain government requirements. It also helps unemployed workers find jobs.

Reinsurance: Reinsurance is the shifting of part or all of the insurance originally written by one insurer to another. This is a central feature of the operations of all commercial insurers.[11]

Miscroinsurance Distribution Model

Micro insurance business is done through the following intermediaries:

a. Non-Government Organisations

11. Brown, W. and C. Churchill (1999). Providing Insurance to Low-Income Households. Part I: Primer on Insurance Principles and Products, November 1999

b. Self-Help Groups

c. Micro Finance Institutions

d. RBI regulated NFBC, MFI's,

e. District co-operative banks U/s (3) RRB act 1976 subject to brief eligible as per norms of RBI.

f. Primary Agriculture co-operative societies registered under co-operative society act.

g.`Business correspondent appointed in accordance to the extant RBI guidelines with any of the scheduled commercial Bank.

Factors determining market

To make micro insurance popular, demand has to be created for micro insurance products, for which we have to consider the following aspects.

Adequacy / Type of coverage: In general, no single form of insurance provides overall full coverage to low income households. However, health insurance is top priority insurance, because the poor, due to lack of proper medical facilities or incapacity to afford it, are not able to take care of their health. Other insurance types are stock, crop, property and miscellaneous insurance. Life insurance is also a priority insurance. But a one time payment may not be enough for loss of income in case of death. Hence a product should be designed in such a way so that the nominee or beneficiary or legal heir instead of getting a lump sum amount on the death of the insured, get a regular periodical payment called annuity, in lieu of the sum assured. Flexible schemes with different levels and types of coverage with more options are desirable.

Accessibility: As the case is, due to lack of proper education, knowhow and awareness among rural people as well as the urban illiterate leave alone micro insurance products, even normal insurance products, are not accessible to them. However, this accessibility can be provided.

Through voluntary self-help groups/ non-Government organisations

By risk-pooling among informal groups, regular premium and making payments thereof.

Access also depends on belongingness to social network

Appropriateness of timing: As mentioned earlier, low income households are vulnerable to shocks because they lack cash reserves to cover immediate expenses. Consequently, the timeliness of claim payment is very crucial to provide timely relief to the beneficiary, which creates further demand for micro insurance. Micro insurance target market often has irregular and unpredictable cash flow. To minimize lapses and maximize renewals, the claim payment mechanism has to find.

Affordability and Pricing: In a country like India where 80% is falling under rural population and 67% of population covered under poverty affordable premium pricing can only increase the demand in the sector. A balance between sensitivity of cost and benefits derived out of the product is the key determining factor. Similarly, poverty limits the extent of financial obligation they will take on. However, pricing of a product is very crucial for the actuary to determine keeping in mind the obligation and interest of the poor section of the society. Actuary has to undergo several factors for determination of pricing, available experience data, observation and assumption, has to consider target market, product design, market and competition among insurers. Generally, accurate pricing begins with quality data base. If the pricing of the product do not create trust in the product vis a vis the benefits provided the same can lead to disproportionate premium rates and the resultant erosion of confidence in the scheme.

Awareness/Insurance education: As mentioned previously, Indians have a near about 35% of insurance

awareness. In Indian context general insurance as it is considered as a valueless expense without any return until experienced with some loss events. Even educated people sometimes think in the same way. A proactive risk management strategy and continuous campaigning can only create a sensation to the society. Until and unless an insurance culture is created the adoption of such insurance cannot be formally sustainable.

Micro Insurance Industry Penetration so Far

Micro insurance is comparatively a new concept recently focused by United Nations. However as per UN report a large segment of penetration is dependent on India in South Asia. It gained acceleration post 2005 after IRDA first came up with a regulated Guideline.

Macro level (The enabling environment):

IRDA drafted micro insurance guidelines in 2010, which contain numerous favourable measures such as

- Lower threshold limits for agents' commissions
- Rural areas must account for 7% of new life insurance policies in the first year of firm's operation and rise to 20% over the next 10 years

Intermediate level (Support infrastructure):

- In order to reduce micro insurance distribution costs, IRDA proposed micro insurance schemes to supplement existing government insurance schemes
- The number of regional rural banks and NGOs operating in the rural sector will aid distribution of micro insurance products.

Micro level (Policy holders):

- The annual income growth rate in rural India is expected to increase to 3.6% over 2010–30 from 2.8% during 1990–2010
- About 5 million people currently have micro insurance, while the entire market is expected to be in the range of 140–300 million[12].

Fact and Figures:

In FY16, total new business premium in India was recorded at USD 49.69, with USD 8.97 million accounted for by the private sector and USD 40.72 million by the public sector.

Crop insurance market in India is the largest in the world, covering around 30 million farmers. To provide crop insurance to farmers, Government has launched various schemes like National Agriculture Insurance Scheme (NAIS), Modified National Agriculture Insurance Scheme (MNAIS) and Weather-based Crop Insurance Scheme (WBCIS).Total sum insured under crop insurance is USD 919.41 million .Government of India plans to increase the coverage to 50 million during the 12th Five-Year Plan.[13] As of February 2017, the Central Government aims at enhancing crop insurance cover from 22 per cent of farmers to 50 per cent in the forthcoming 2 years. It is estimated that by 2020 three in every four insurance policies would be influenced by online channel. It is estimated that insurance sales through online channel will grow 20 times from now by 2020.[13]

Pradhan Mantri Fasal Bima Yogana(PMFBY):

Total 16 Insurers have underwritten crop insurance in FY-16-17 as per the Annual Report of IRDA.[14]

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TABLE 1.90 PRADHAN MANTRI FASAL BIMA YOGNA (PMFBY) AS AT 31.03.2017

Insurer	No. of Farmer Covered	Gross Premium (₹lakh)	Claims Reported	
			No. of beneficiaries	Amount (₹ lakh)
A	B	C	D	E
AIC	23882055	663203.5	6129300	272471.5
Bajaj Allianz	1221595	65204.4	220365	180846.0
Chola MS	1782012	23378.94	101926	7009.9
Future General	1602767	21297.2	100000	6944.4
HDFC ERGO	3410353	202488.7	563369	26073.6
ICICI Lombard	2501534	140354.0	300650	26025.9
IFFCO Tokio	3646915	110561.9	650122	61665.2
Reliance General	2581660	91944.2	118409	16490.0

12. Source: IRDA, McKinsey, TechSci Research, available at www.ibef.org 13. Source: Agricultural Insurance Company of India Annual Report, Department of Agriculture and Cooperation, IRDA, TechSci Research 14. Source: BCG, Gartner, TechSci Research Notes: (1) Retention ratios are from FY14

Insurer	No. of Farmer Covered	Gross Premium (₹lakh)	Claims Reported	
			No. of beneficiaries	Amount (₹ lakh)
SBI General	578429	36525.6	26054	5353.4
Shriram	290953	10239.3		
TATA AIG	808407	41941.1	96929	15508.5
Universal Sompo	949252	43897.2	345468	35134.8
National	1888707	23729.6	59394	3792.3
New India	633616	104642.0		
Oriental	70402	395.8	197	14.0
United India	5130706	141720.7	203	36.2
Total	**50979363**	**1725524**	**8712396**	**657366**

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Life Insurance Sector:

While the individual new business premium under the micro insurance segment for the year 2016-17 stood at Rs. 38.22 crore under 9.56 lakh new policies, the group business premium amounted to Rs. 460.43 crore covering 3.22 crore lives. LIC contributed to the business procured in this portfolio by garnering Rs. 15.87 crore of individual new business premium under 4.8 lakh policies and Rs. 340.08 crore of group premium covering 2.30 crore lives. The private sector contributed the remaining 4.76 lakh policies and Rs. 22.35 crore premium in individual business and 0.92 crore lives and Rs. 120.35 crore premium under group micro business. The number of micro insurance agents at the end of March 2017 stood at 35200; of which 19301 agents pertained to the LIC and the remaining represented the private sector life insurers. Out of the total 35,200 MI agents of Life insurance industry, NGOs form 21.7%, Self Help Groups (SHGs) form 1.1%, Micro Finance Institutions (MFIs) form 1.0%, Business Correspondents (BCs) form 0.2% and other MI Agents form 75.9%. 28 micro insurance products of 17 life insurers were available as at 31st March, 2017. Of these 28 products, 18 were Individual products and the remaining 10 were Group products.

TABLE 1.91
NEW BUSINESS UNDER MICRO INSURANCE PORTFOLIO 2016-17

(Premium in ₹ lakh)

Insurer	Individual		Group		
	Policies	Premium	Schemes	Premium	Lives covered
Private Total	475269	2234.37	387	12035.36	9281170
LIC	480892	1587.13	4812	34007.62	22965393
Industry Total	956161	3821.50	5199	46042.98	32246563

TABLE 1.93
DETAILS OF MICRO INSURANCE AGENTS OF LIFE INSURERS 2016-17

Micro Insurance Agents	Private Total	LIC	Industry Total
NGOS	142	7504	7646
SHGs	20	369	389
MFIs	22	337	359
Business Correspondents (BCs)	6	74	80
Other MI Agents	15709	1017	26726
Micro Insurance Agents Total	**15899**	**19301**	**35200**

15. IRDA Annual Report 2017

General Insurance Sector:

There are around sixty products (e.g., Cattle Micro Insurance Policy, Kisan Agriculture Pumpset Micro Insurance Policy, Janata Personal Accident Sukshma Bima Policy, Silkworm Sukshma Bima Policy, Sheep and Goat Micro Insurance Policy, Sampoorna Griha Suraksha Policy etc.) offered by the registered general insurance companies targeting low income segment of the population. The Authority has permitted Prime Minister Fasal Bima Yojana (PMFBY) covering non-loanee farmers, to be solicited and marketed by Micro Insurance Agents under IRDAI (Micro Insurance) Regulations, 2015. Further, general insurance policies issued to Micro, Small and Medium Enterprises as classified in MSMED Act, 2006 under various lines of general insurance business will also qualify as general Micro Insurance business upto Rs. 10000 premium per annum per MSM enterprise.[16]

Issues

Strategic Positioning Issues:

It is unfortunate that Building and positioning a portfolio of micro insurance products is still not a priority in India. Insurers and channel partners are stuck into the revenue generation and the big move is thus sacrificed in many ways. We will have to remember the target customers we are going to deal with under this specific product with a broader developmental objective. The insurer might incurred loss primarily but when the confidence will be generated the customers can trun to be the asset for future. Micro insurance should not be considered as obligatory necessity by insurer. The focus of the companies is towards achieving the IRDA Amandated numbers, even at the cost of subsidising the products. As a consequence, companies develop simple term products (predominantly credit-life) with little innovation, and then wage price wars to somehow "push" the product to the low income segment.

The statutory obligation poses a very insignificant portion of micro insurance business in India. As a result companies do not require huge numbers to fulfill their mandatory rural business. They often partner with small and medium sized MFIs for their individual credit-life micro insurance products and with large MFIs for group credit-life policies. Since the ticket size is small agents often are discouraged with a small part of commission resulting into demotivation of earning. For the large MFIs, the interest is limited. Also the benefits provided in these single benefit (life) products are inadequate to address the client demand for comprehensive insurance coverage. If all the stakeholders are not pre intimated about the benefits of micro insurance, they will be sceptic in venturing the micro insurance operation.

Product Issues:

Insurance companies lack the mortality and risk related actuarial data for the target client segment. Moreover, in order to reduce documentation and simplify calculations, they have adopted enrolment forms and formats that are unable to address all risk related queries. As a result, both actuaries and underwriters allocate higher risk weightage to micro insurance products, making them unaffordable and benefits unattractive to the clients. Moreover, the lack of interest from insurance companies is complemented by the lack of demand for customised solutions by the aggregators. As a result, insurers as well as the aggregators have not invested in adequate market research to ensure market "pull" for micro insurance products.

Conventionally, insurance is sold as a long term risk hedging (or savings) tool through a combination of term insurance, annuities, endowments and unit linked investment funds. However, inter-organisational and inter-geographical migration is prevalent in the target market segment approached by the micro insurance aggregators (MFIs and co-operatives). Furthermore, the association of clients with the MFIs is also often transient and short term. These factors make long term product horizons a challenge for micro insurance. Moreover, the current regulation incentivises both aggregators and insurance companies to sell annual term policies, another reason for limited innovation in long term micro insurance products.

Distribution and Process Issues:

Insurance as a specific product category, requires dedicated resources and distribution channels. However, the variable revenue and projected income/client numbers cannot justify the fixed cost of administration and distribution of micro insurance in short term. Standalone micro insurance players, therefore, are practically non-existent. This is reinforced by the regulatory bias towards the partner-agent model, which promotes distribution through MFIs. This has culminated into two unfortunate trends:

16. *Annual Report IRDA 2017*

1. The MFIs have started bundling their credit products with the micro insurance; and/or
2. Micro insurance has become mandatory (or semi-mandatory in certain contexts) for the MFI clients, who are neither solicited about the real terms and benefits of the product, nor asked if they want it. In a mature insurance market, differentiation is derived from the quality of service. In Indian micro insurance, however, marginal differences in price and commission remain the key differentiators. In the partner-agent model, firstly, the ultimate beneficiary and the nominee are different; and secondly, there is a huge imbalance in the institutional magnitude and negotiating power between the MFIs and the large insurance companies. The small MFIs lack the bargaining power and expertise to negotiate adequate product and process terms. Since, the large MFIs are interested only on low cost credit-life insurance, they negotiate with the insurers on the premium amount and cost sharing arrangements, rather than service quality. Hence, optimum service quality is neither negotiated nor ensured. The absence of customisation and standardisation of processes has led to high costs, absence of coordination between aggregators and insurers and poor service quality (e.g. turn-around time for pay-in, issuance, claim servicing, renewal etc.). Clarity about the rights and responsibilities, risks and cost sharing among the channel partners is also opaque due to lack of standardisation in agreements.

Latent Demand and Financial Literacy Issues:

The demand for insurance has remained latent across the globe. Insurance companies address the issue in three ways:

1. Invest heavily in product marketing (sometimes cloaked as financial education) for clients, as well as staff.
2. Bundle the insurance benefits with other attractive aspects, like savings, annuity and investment, to address the prominent demand for savings and investment.
3. Design effective staff incentive programmes, in order to ensure adequate penetration and service quality.

As the Indian micro insurance industry is young, it is still to realise and implement such focused product marketing, product design, and human resource management programmes. The small ticket size and insubstantial revenue (often resulting in short term losses) makes the players apprehensive of investing in such efforts.

Other Issues:

Indian insurers are not accustomed to selling high volume, low ticket products

Fixed cost of distribution and administration is not justified by low penetration and short term loss

Commission income from low ticket policies is insignificant as compared to their overall revenue

Cannot route premium through books, hence cannot use it for liquidity management or investment

The brand of the channel partners often depends on the services provided by other channel partners, e.g., insurance companies' brand depends on the service of the aggregator and vice versa

- Latent demand for insurance
- Awareness of clients about insurance, products and their features is limited
- High risk allocation by underwriters and actuaries
- Ambiguity about the nature of demand of the low income segment for micro insurance
- Simple forms, formats, limited KYC requirement increases the risk weightage, increasing the price
- The sum assured is low compared to the actual indemnity experience of the clients, making the products unattractive
- If staff of the aggregator is incentivised for insurance, they might allocate more time in insurance than core work of the agent, a risk MFIs and other aggregators do not want to take
- Non-customisation of processes leading to high cost, opaque terms of risk and cost sharing among channel partners, and poor service quality
- Migratory nature of the clients, requires a delivery channel, which can serve on a sustained basis
- Due to long term client association, systematised database and vast client base, banks are preferable channel partners for the insurance companies[17]

17. *Refer to MicroSave India Focus Note 87: "Microinsurance in India: The Evolution of Market Trends" for details*

> Insurers and channel partners are stuck into the revenue generation and the big move is thus sacrificed in many ways. We will have to remember the target customers we are going to deal with under this specific product with a broader developmental objective.

Recommendations

Literacy: Since micro insurance deal with low income group and the illiteracy is very normal in this group of people it should be the responsibility of Govt. and private players to constitute specific rural campaigning and micro insurance institutions/academy at panchayat level to make them aware of micro insurance facility.

Trained Agent: Agents in pitching and soliciting products have to be specially trained. They have to be sensitive and sympathetic toward people they deal with. Each and every terms of insurance and facilities have to be well communicated to customers. The institute must appoint the trained agent according the status of that area. The agent is required to know the local language of that area. They must know the problem of that area. The Geographical knowledge will also help to the agent.

Documentation: The Government will have to make technical glitches ignored for want of perfect documentation from such society. The process should be sounded easy and accessible. It should be lucid and clear and no ambiguity should there be in the mind of poor people. The formality may be reduced to promote the micro insurance facility

Reduction in the cost of administration: An insurance product sale is all about selling a promise to make good the loss should the insured event occur. As a natural practice the sell process differ from urban to rural areas due to the differences in socioeconomic and demographic factors, education levels, awareness of the importance of financial protection, and availability of suitable products and lines of distribution. The product should be simple and availing of facility should be lucid. Insurance companies must focus on quick settlement of genuine cases to create an impression of trust in the society. Therefore, it is important that the products are simple and the claims process simpler to keep the claims processing and management cost within reasonable limits.

Improve persistency: Persistency refers to the percentage of policies renewed every year over the policy period. In 2015–16, the average thirteenth month persistency rate for life insurance policies was just 61%. More than 65% of life insurance products in the sixty first month had lapsed during the year as policyholders did not renew their products.[18] The persistency problem could further accentuate in rural areas owing to the seasonality of income and lower ticket sizes of the product, resulting in lower incentives to collect the renewal premium and lower direct connect with the customer and insurance company. Globally, in developed economies, the persistency ratio is close to 90% in the thirteenth month and above 65% after five years. The acceptable persistency rate in life insurance is 80% for three-year-old policies and 60% for ten-year-old policies.[19]

Technology: The penetration of mobile phones across the world, especially at the lower end of the pyramid, has opened up multitudes of possibilities for many ancillary technologies that can change the way problems have been visualised thus far. The smartphone users in India is estimated 340 million when the total smart phone users all over the world is 2.3 billion. The smart phone penetration rate in India is forecast to reach 530 million by 2018. This could be the right impulse to grab the market through this huge technological advancement. One such example is the advancements in the field of telemedicine.

Case study: World Health Partners (Therapeutic Care from Distant Doctors) The SIM card used in a common 2G/3G/4G mobile phone system can become the gateway to enable a city based doctor to provide good quality medical consultations to remotely located patients with the support of vital parameters such as blood pressure, stethoscopic sounds of heart and lungs, temperature, pulse, foetal sounds, haemoglobin levels, blood glucose counts, and cardiac signals. The future presents the potential to add further parameters such as visuals of skin lesions (derma-scope), ear infections (otoscope), sonograms and many more. In short, currently available technologies harnessing the wide availability of basic mobile telephony even in the interior villages can deliver a range of primary health services at the door step of rural communities

18. *IRDAI Handbook on India's Insurance Statistics: https://www.irdai.gov.in/ADMINCMS/cms/frmGeneral_Layout.aspx?page=PageNo3083andflag=1*
19. *https://www.pressreader.com/india/mint-st/20170418/281857233411230*

thereby assisting a global mandate of Universal Health Coverage for all.[20] In centers where broadband access is available, we have internet based systems in operation, which facilitates face-to-face consultation with doctors who are based at a distance. Providing such therapeutic care will reduce the burden on the government's primary health centers, enabling them to focus on services that require physical presence (such as basic surgeries, immunization, IUD and sterilization, gynaecological services). By combining the demand generating and counselling skills of private providers with the medical skills of the public sector under an official collaboration, where Auxiliary Nurse Midwives (ANMs) inserted IUDs and provided gynaecological services at private centers) produced spectacular results. This can be expanded to many more services. More complicated cases are referred to higher centers both in the public and private sectors. The program has received fantastic response from the communities we currently operate in. Our engagement primarily focuses on maternal and child health, TB detection and treatment, malaria and diarrhoea prevention, family planning and reproductive health. WHP has received support in the past from the Bill and Melinda Gates Foundation, Merck for Mothers, GSK and many others. WHP has won the prestigious Skoll Award for its innovative approach to rural health care. Our current focus is to reach out to more communities within sub Saharan Africa. Hence, we focus on initiatives with suitable public-private engagement that will make community health and welfare projects easy scalable and sustainable. WHP is in a position to scale our operations easily, and we are progressing steadily towards making these initiatives sustainable by encouraging a happy dose of local entrepreneurship at the village level. In this regard, we actively encourage women entrepreneurs to become our operators in the field. We are also in the process of developing nurse centers in Kenya, hence utilizing the skills of many trained nurses at the village level, who currently are unemployed. WHP believes in collaboration with local communities. Hence, within the countries we are currently targeting, we look forward to working with a local NGO who is familiar, and has access into the communities they operate in. Within India and Kenya, we are working up on increasing collaboration with the government, private sector as well as civil societies, as our efforts in this direction have provided excellent results in terms of outreach and treatment of underserved communities. Technologies are most effective when they are accompanied by process changes. It remains to be seen whether technology can replace the high-touch human interaction that currently characterizes many micro insurance schemes, without client understanding.[21]

Conclusion

Policy-induced and institutional innovations are positive factors in promoting the product among the low-income people. These segment is mostly in the informal sector and outside the purview of any social security cover. The present trend however shows upward trend in reaching to this section but a huge segment is still left untouched and deprived of the welfare scheme. It is mostly profit oriented when a person is capable of paying a premium for the cover. For those who cannot even afford to bear the cost Govt. must come with subsidised discount for bringing them under the umbrella of insurance. To that extent imposing social and rural obligations by insurance regulator (IRDA) is compelling all insurance companies appreciate the vast untapped potential in serving the lower end of the market.

However, it is becoming increasingly clear that micro insurance needs a further push and guidance from the regulator as well as the government. The traditional agency channel should be alternatively replaced for further expansion of the market through innovation and technological support. Insurance should be made available at the fingertip of individual and without agents in some cases. Even so, two areas in which having explicit provisions would aid the development of micro insurance are: one, flexibility

20. Case study: http://www.impactinsurance.org/hwg/lessons/healthmicroinsurance-emerging-lesson
21. worldhealthpartners.org

in premium collection, and two, encouraging micro insurance among micro finance institutions (MFIs).

Flexibility of premium and in some cases Govt. borne premium can be effective instrument in some cases for attracting more customers and encouraging hidden talents who wants start-ups. Moreover, MFIs are playing a significant role in improving the lives of poor households. It would be even more sensible to go hand in hand with micro finance as it would ultimately help bringing down the lending cost. Given this, there is a case for strengthening the link between micro insurance and micro credit. At present microfinance business in the country is unregulated. Regulation of MFIs is needed not only to promote micro finance activity in the country but also to promote the linking of micro insurance with micro finance which as demonstrated in the paper makes a good sense.

The challenges faced by micro insurance schemes may be the learning lesson for the generations to come. Product development, regulatory modification, financial literacy drive, distribution optimization for insurance products are a few steps to ensure better and deeper micro insurance penetration in rural areas for people living below poverty line. If rightly implemented micro insurance schemes could bring in sea change in the living standard of rural population living below poverty line. The customization of products could better suit to the need and requirement of individual customers and hence could favourably impact the demand for micro insurance products. Training programs for insurance professionals especially sales agent in large number could not only generate employment among the educated work force sitting idle without job but will also ensure deeper penetration and higher demand of insurance products in the market.

Technology will play an overarching role in the smooth and efficient delivery of products and services across the value chain. It can be leveraged to buy a product and provide services like changing address, nomination, coverage value, etc. One of the largest service offerings that leverage technology could be for making payments through a unified payment interface. Awareness and education activities about insurance and other financial solutions can be made accessible to everyone using technology. Needless to say, all of the above, if made available through mobile phones, could totally change the paradigm. While technology becomes the new oxygen that slowly pervades the micro insurance space, it can help in social messaging through rural broadcasts and making the existing ***'Anganwadi'*** networks more efficient. Further awareness can be generated by using FM radio based contests and gamifying key concepts on the importance of protecting one's self, family and other assets against the vagaries of life.

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Consolation Prize

Technical Paper Essay Competition (Pension)

Superannuation Schemes – a Tool for Employee Retention

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Abstract

Superannuation schemes are being offered by organisations as part of employee benefits. These schemes are offered to employees above a certain level in an organisation's hierarchy. While these schemes can be a tool for employee retention, there are other factors that play an important role in enhancing employee loyalty. Insurers, organisations and government must work together to make superannuation schemes attractive and tax efficient. Rising health care costs will make advanced medical care expensive. So, if employees have to maintain a decent lifestyle after retirement, superannuation products have to be carefully designed. Firms who are operating in the fintech space can provide technological support. Big data can help in targeting the right kind of information so that schemes can cater to needs of employees and help them in making the right decision. Companies should organize awareness sessions for employees so that they are educated about the strategic benefits of retirement schemes like superannuation funds. As the number of investment options for employees increase, it is essential to improve financial literacy of employees through regular interaction with financial advisors.

This paper has given certain recommendations so that superannuation can be one of the effective tools to retain employees in

the organisation. Creative approaches are needed along with substantial tax benefits to make the schemes more attractive to organisations as well as employees.

Key words: Retirement, Superannuation, Fintech, pension, Financial literacy

Introduction

During the earlier days, when people retired they did not worry much. People living in joint families were confident that their children would take care of them. However, in the last two decades, nuclear families have become the norm. After the IT boom, many senior citizens live in India as their children – settled in the USA/ UK/ Canada – are reluctant to return to their mother land. Advanced health care facilities in India have increased longevity. Superannuation schemes are needed so that even after retirement, people can lead a comfortable life. Senior citizens continue to work even after retirement to remain physically agile and mentally active.

While employee benefits are driven by legacy or industry practice, superannuation schemes are driven by statute. For some strange reason, superannuation schemes are not as popular as they should have been.

Earlier employees were more loyal to the organisation. So, employers were motivated to offer retirement schemes. However, in the last few years, employees switching jobs has become a routine affair. Superannuation plans are optional retirement plans. They are offered to selected employees.

Superannuation funds are not portable, have a long vesting period and funds cannot be withdrawn before a certain age. Indian companies tend to use superannuation funds as a long term incentive benefit for middle and senior management. Funding for these products is through insurance. The insurance companies take care of administration, compliance and investment management. Restructuring of such superannuation products is now on the anvil.

What is Superannuation?

Superannuation is a regulated payment method that provides financial security to an employee when he retires from the organisation. Generally, superannuation pensions are not taxed heavily. This is to encourage contributions from employer and employee. Whatever the scheme, the main goal of superannuation is to provide a steady income to an employee after retirement.

Superannuation schemes involve contribution to an income tax approved trust or a fund. This leads to creation of a corpus to buy pensions on retirement for the benefit of employees. Investments grow over the years so that employees have access to a higher corpus on retirement.

Superannuation Scheme in India

In India, a superannuation scheme is a prerequisite facility given to employees in various organizations as part of their employee retention strategy. The superannuation scheme allows deduction up to 15% of the basic and in combination with the provident fund must not exceed 27% of the total compensation as per existing rules under the Income Tax guidelines. Superannuation can be utilized through different insurance providers, both government and private. Superannuation pension schemes are defined contributions in nature and an employee can withdraw it any time.

> Superannuation schemes are being offered by organisations as part of employee benefits. These schemes are offered to employees above a certain level in an organisation's hierarchy. While these schemes can be a tool for employee retention, there are other factors that play an important role in enhancing employee loyalty. Insurers, organisations and government must work together to make superannuation schemes attractive and tax efficient. Rising health care costs will make advanced medical care expensive.

In India, there are two types of superannuation benefits

1. Defined Benefit Plans: These schemes have a defined benefit. It is given to employees based on their service, rank and final salary. Regardless of the contributions of employees, the latter are entitled to receive a pension.
2. Defined Contribution Plans: In this scheme, the final benefit is directly correlated with contributions made

by employers and employees. The scheme defines the contribution of both. But the outcome is left to the market forces. Most modern pension schemes are defined contribution plans.

The superannuation fund has to be approved by income tax commissioner. Generally, benefits under the group superannuation scheme are payable only at the time of retirement. If employee resigns and joins another company, benefits of group scheme can be withdrawn if the new employer is not offering the scheme. This will need approval of income tax department. Alternatively, the proceeds can be with the superannuation fund till the time of retirement after which the funds can be used to get a pension.

In case services are terminated before the retirement date, the benefits can be paid immediately or at the normal retirement date. When an employee retires, he may withdraw 1/3rd of the corpus as commuted value which is tax-free and for the remaining 2/3rd an annuity has to be compulsorily bought from a life insurer.

There are different superannuation schemes that are offered by organizations. These vary from one organization to another depending on the strategic tie-up that they have with life insurers. In the defined benefit scheme, employees are given a specific retirement benefit based on salary and years of service. These plans are funded by employee contributions. Any shortfall is made good by employer as the master policy holder of the group superannuation policy. Assured benefit is payable on complete surrender and it is applicable on entire superannuation fund available with insurer.

In the defined contribution scheme, employees and employer contribute to the fund. Rate of employee's and employer's contributions are defined as a percentage of salary. As employees keep switching jobs for better career prospects, the fund value on retirement when benefit is due becomes payable. Here assured benefit is payable on retirement or death only. The benefit is not payable for exits other than retirement or death.

Superannuation schemes are driven by tax benefits. Tax and regulatory changes in the recent past have had an adverse impact on such schemes. The government introduced a perquisite tax for contributions made by the employer in excess of Rs I lakh, as taxable in the hands of employee. Employee contributions fall under section 80C of Income Tax within the overall limit of Rs 1.5 lakhs.

The regulator instructed insurance companies to file for a new product with the regulator that had minimum guarantees. The product then became temporarily unavailable. The resulting uncertainty led employers to discontinue contributions to the superannuation scheme. Some employers offered an option to employees to withdraw the corpus accrued. Clarification was sought from income tax authorities regarding the tax to be deducted.

Though superannuation schemes are portable, this is possible only if the new employer maintains an income tax approved trust just like the previous employer. If the new employer does not have a trust, then employee has to leave the past accumulations in the previous employer's trust and avail annuity at a later date or transfer the same as and when the current employer sets up an approved trust for accumulating superannuation funds. An immediate annuity or withdrawal of fund will involve payment of taxes.

Despite the fact that superannuation funds are large, governance standards leave a lot to be desired. This is not the case in India alone. Even Australians feel that superannuation funds are not being managed well.

As per recent rules, employees have the option of portability of superannuation funds to new pension scheme during the final year of retirement. This can lead to a single annuity payout besides 100% tax free withdrawal of accrued provident fund.

The Pension Fund Regulatory and Development Authority (PFRDA) proposed bringing superannuation funds under its ambit. Superannuation funds are managed by private trusts. There is lack of transparency about how these funds operate and the returns generated. Very few employers give annual statements to employees. Ideally, the superannuation funds can be regulated by PFRDA.

Why do Employees Leave Organisations?

Employees leave organisations because

1. They do not feel valued
2. Work environment is highly contrived
3. Job content is boring and doesn't leave any room for career development
4. There is poor work life balance and high levels of stress
5. Leaders are demanding and abusive
6. Rewards, incentives and income are not commensurate with the expectations of the job

7. They have an offer that is too hard to resist

Seldom do employees leave an organisation because the employer does not provide a superannuation scheme. These schemes, as per research conducted by Cranfield School of Management, are more suited to employees at higher levels in the organisation. These employees have spent considerable time in the organisation and so there is a psychological contract between such employees and the organisation. However, benefits offered by an employer can make the employee choose between the current organisation and a future organisation. If a salary pension scheme is perceived as rewarding, employees are unlikely to switch jobs or careers. The flip side is that organisations will also have to deal with non-performing and disgruntled employees who stay in the organisation only for the sake of earning future benefits. It is a Catch 22 situation.

Organisations need a churn at regular intervals as otherwise they face the risk of becoming dead wood. Not all senior employees are equally enthused or self-motivated. Some of them may continue with their arcane practices and resist any attempts to engineer change. New employees can infuse the organisation with fresh ideas due to their energy and enthusiasm. Organisations that are not performance driven will suffer the consequences sooner or later.

Providing financial advice as part of a benefits package can create a mutually rewarding association between the employer and the employee.

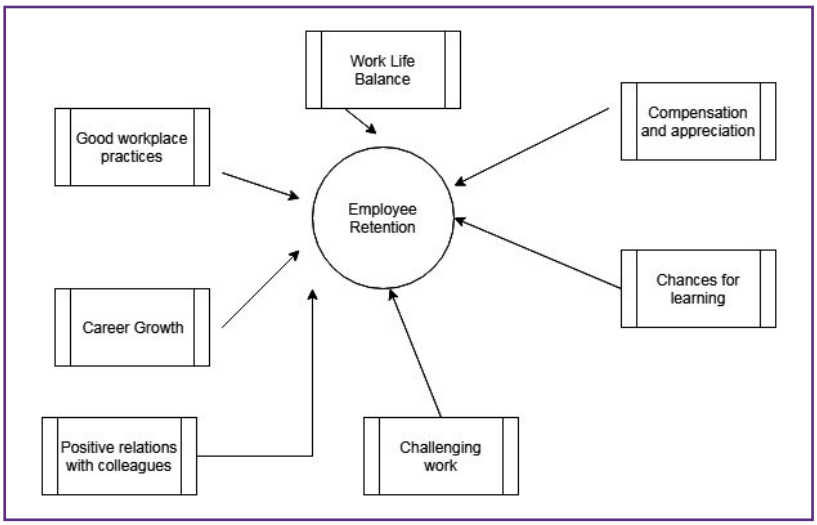
Need for Employee Retention

Employee retention is becoming more crucial than ever before. The cost of training a new employee is more than the cost of retaining an existing employee. Advanced health care facilities have now increased longevity. So, employees can outlive their retirement savings.

Not many people take the time to plan their financial goals nor do they believe in a rigour to systematically save for the future. This may be because of two reasons – they may be unaware of what financial planning is all about leading to inertia to take suitable actions. They may also be wary of financial advisors – as mis selling and wrong advice is not uncommon in India.

where opportunities for learning can lead to career growth. Reward and recognition schemes are as important as appreciation for a good job.

When an organisation takes interest in helping employees save for their retirement, it has a pronounced effect on employee morale and loyalty. The thought that the company is taking care of them makes them emotionally attached to their job and the organisation. However, organisations have to clearly draw the line about the roles and responsibilities. Financial advice is often risky. The job of the organisation is to provide a platform



Source: Author

It must be remembered that superannuation schemes can be only one of the factors as far as retention of employees is concerned. There are so many factors that influence employees to stay in an organisation. In today's fast paced life, work life balance has been important. Positive relations with colleagues can play an important role in reducing stress of an employee. Employees also look forward to a challenging work environment

for employees to invest their savings. The final decision must rest on the employees.

Employee retention can play an important role in increasing the productivity in the organisation. Not all employees may be equally adept or committed to their job – nevertheless organisations have a reason to motivate and encourage talented and performing employees to stay in the organisation. They need to work with their human resources function to explore innovative

ways to influence their employees to stay in the organisation.

Administration of Superannuation Schemes

To attract and retain the most capable and competent talent, different kinds of employee benefits are offered by organisations. Only people who are qualified and trained should advise employees on superannuation schemes. Decisions about superannuation can have long term impact on employees especially with regard to the funds that they have to depend on after retirement. Companies have to be careful not to give financial product advice as this can lead to legal liability for organisations later. Employees can be provided factual information about superannuation. Organisations can ask a superannuation fund provider to make a presentation to employees. The decision making must be left to employees. However, there is a catch here. Employees may ask for immediate withdrawal of funds but organisations may not agree. In India, the funds for superannuation scheme are provided by employers who in turn avail of tax benefits. Making superannuation funds optional can be disastrous. Rather, business organisations need to ensure that such schemes are applicable only for those employees above a particular grade.

Transparency is important. This is one area where organisations lack. Employers can share information about the fund status on an annual basis. Every year, the HR function can organise an interaction session where employees are encouraged to ask questions and clear their doubts about retirement schemes like superannuation funds.

The Role of Fintech Firms

Fintech firms are redefining the digital customer experience based on fast paced technological innovations. In Australia, fintech players' involvement in superannuation funds is considered a potential threat to established players due to the disruptive innovative strategies adopted by them.

Another school of thought is that fintech firms as enablers who will support traditional players to improve efficiency and consumer engagement. Strategic partnerships between Fintech and traditional players can be expected in the future.

While encouraging Fintech firms to support insurers looks like a brilliant idea, a deeper introspection will reveal the concerns. There are many fintech firms that are set up by entrepreneurs who are bit by the entrepreneurial bug – but are these firms sustainable in the long run? Can these firms be allowed to play with people's hard earned money? Most of these entrepreneurs will have no qualms about selling their shares to another organisation and move on. These fintech companies are not covered by regulation in India. So, the role of fintech companies can at best be marginal. They can provide the wherewithal to support the businesses and insurance organisations. They can aid in providing technology support. Administration of superannuation schemes is a sensitive issue that needs to be dealt with carefully.

How can Big Data Help?

Big data can help in increasing efficiency, reduction of risk, managing costs through more targeted communications, foreseeing fund outflows, developing right products and services, enhancing service differentiation and member engagement. Big data can help in understanding needs of members so that they can be provided with the right information and advice through the right channels. It is also about reaching out at the right time. With big data, major transitions and life changes can be addressed. Issues can be dealt with in real time with the right information and advice. Big data can enable members to arrive at best decisions so that they can be prepared for the future.

One has to prepare a strategy for the future so that innovative product tailored to needs of employees can be made available. Members need to have a better experience which will stimulate other members to opt for such retirement schemes.

Recommendations and Suggestions

Facility for a superannuation fund scheme is not an incentive that is available for employees across the board. It is ideal if the superannuation scheme is offered to employees who have invested considerable time in the organisation and is based on a particular level of employees in the hierarchy.

All stakeholders – government, employers and employees – must work towards fostering a pension environment in India that is more conducive. Government must offer higher tax incentives and ensure consistent tax treatment for the benefits given to pension plans. Regulations must be transparent to augment pension coverage in India.

Employee education is important. Employees have to be clear about their retirement objectives and choose

pension plans that will help them build a terminal corpus to realize these goals. Administration of superannuation funds should be transparent, equitable, reliable and adequate.

The number of superannuation funds in India is not consolidated. The number of participants is not known. Total corpus is not available. Some experts feel that there needs to be a separate regulator of superannuation funds in India. But some experts contest this and feel that PFRDA can handle regulation of superannuation funds as well.

Superannuation is payment of a benefit to a person upon retirement from employment. Different superannuation schemes are offered by employers to attract employees. Making employees understand superannuation schemes is essential to engage them. Research has revealed that consumers are more concerned about rising living costs and having money after retirement than current living expenses.

People who are working much beyond their retirement age are also increasing. Continuous changes in legislation on retirement schemes can erode the confidence of employees. Taxes levied on such funds are seldom acceptable to employees. A superannuation account that is operated more like a bank account is more acceptable to employees.

Mobile phone apps to check how superannuation fund is growing can generate confidence in employees. Employees can meet a superannuation specialist or a financial adviser. Hectic lifestyles are used by individuals as an excuse to avoid investing time for financial planning. The scheme must be simple. Employees must be induced to listen, learn and act.

Conclusion

Superannuation fund is an employer-sponsored voluntary pension plan to facilitate pensions for employees when they retire or leave the organisation. This fund can be either a defined contribution or a defined benefit scheme, depending on the option selected by employer. This fund can be created through a trust, by executing a trust deed and the same can be approved by income tax authorities. The superannuation fund can be managed internally or through an insurance service provider approved by IRDA.

Superannuation funds should not exceed 27% of the employee's salary. Partial withdrawal of fund in lump sum is allowed while the balance has to be invested in an annuity scheme. The annuity would be taxable as salary.

As companies focus on short term benefits like health care, leave

allowance etc, the focus on retirement benefits seems to have lost steam. The Government needs to focus more on retirement sector funds. Pre-retirees have two key challenges – adequacy and longevity. Regulatory roadblocks need to be removed. Encouragement of long term income schemes is a must. Product innovation will continue but allocated pensions will continue to be preferred vehicle.

Insurers must work collaboratively with employers. People generally lack trust in financial services. Rampant misspelling, poor service quality, fluctuation in stock markets – these are some of the reasons why people are skeptical about financial investment planning. But this is a cause for concern because financial education and literacy are most important for an individual who wants to maintain a decent life style after retirement. Bank fixed deposits do not offer much of a solace in terms of an attractive interest rate. Therefore, people must have a reason to embrace superannuation schemes and employee engagement on such matters is inevitable in this regard. Engagement can only happen through advocacy and advocacy can happen when superannuation schemes have helped people. Younger employees may not be interested in superannuation schemes but those employees who are in the middle management level and are also performers need to be motivated through superannuation schemes.

Employee superannuation schemes are guided by investment norms as prescribed by Income tax Dept... Insurers can provide a plethora of choices – products that invest only in debt funds or with a debt-equity mix. The right superannuation scheme can make employees' salary tax efficient. The added benefit is that employees also save for retirement.

Last but not the least, the government needs to seriously introspect about taxing the superannuation schemes. After an employee has paid taxes to the government all through his working life, it may be unfair to again tax his income after retirement. As advanced health care facilities prolong lives of senior citizens, they need to live a life of dignity. So, it is important that government looks at either a tax free pension scheme or charges senior citizens a minimum tax for the incomes resulting from superannuation schemes. Unlike in West, India does not have a strong social security system. The least the Indian government can do is not to burden senior citizens with taxes on their retirement funds.

Superannuation schemes can increase employee retention provided employees understand such schemes. Their buy-in is important. So, employees need to be engaged so that awareness can be created about the benefits of superannuation schemes. But it needs to be remembered that such schemes can only be one of the reasons for retaining employees. Employees stay in an organisation for various reasons and not just for availing postretirement benefits. The value proposition has to be attractive and convincing for fueling the interest of employees in superannuation schemes. The regulator must work closely with insurers to design new products that can be offered to organisations. Such products must influence employees to take interest in superannuation schemes.

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An Implementation Agenda for IRDAI to Transform Its Regulatory Framework to SERVE the INDIA of 2022

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Introduction

Our earlier Monograph, "A Transformative Agenda for the Indian Insurance Industry and its Policy Framework" provided a transformative roadmap for the development and progress of the Indian insurance sector*. It focused on key areas that need to be addressed from a policy, regulatory and market development perspective, and concluded that a Transformative Agenda begins with an enabling, independent and friendly Insurance Regulatory Authority.

The IRDAI will require a written Regulatory Vision Document to be put in public domain e.g. competing with global best regulatory standards or wanting to take insurance penetration from x to 2x or the roadmap for the next 4 years etc. with modern regulatory tools (currently all **Conduct** standards are issued to the Indian market as **Prudential** regulations though there is a need to pursue 'prudential regulations' and 'conduct'

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standards differently) to bring about paradigm shifts.

Given the Indian insurance market is both under-penetrated and inadequately penetrated, and given the challenges, **Transformation needs to be pursued with a capital T**. What is required is to embrace modernity of ideas and diversity of talent. In underwriting human progress in India, insurance needs a modern and progressive framework that assimilates the best practices from around the globe and localises them for a rapid and inclusive growth. It an economic necessity and social priority.

The policy making is required to be intelligent – intervene/lead/guide where necessary but stay away and watch closely where prudent. India requires simple regulatory architecture. It must **promote 'Ease of Doing Insurance Business',** both by greatly improving its own service deliveries and instilling confidence through a progressive regulatory framework where:

- Regulations/standards are not one size-fits-all for both high performing and poor performing entities
- Regulations are outcome based that fuel innovation
- Regulations ensure Free Competition and a Level Playing Field to all

These objectives are possible when the regulations cater to:

- Prudential and Principles based architecture around Economic Risk Based Capital & Solvency norms, Enterprise Risk Management, Corporate Governance and Protection of Policy Holders' Interests.
- Protection of Policy Holders' Interests based on 'Contract Certainty' (pre-sale) and 'Effective dispute resolution mechanisms' (post sales servicing), with Fraud Management standing guard at both ends.
- Conduct Standards that focus on risks rather than compliance

> Our earlier Monograph, "A Transformative Agenda for the Indian Insurance Industry and its Policy Framework" provided a transformative roadmap for the development and progress of the Indian insurance sector.

This Monograph 2, a sequel to the earlier one and titled, "An Implementation Agenda for IRDAI to Transform its Regulatory Framework to serve The INDIA of 2022" starts with an IRDAI Vision 2022 – **"To provide India a modern, transparent and progressive framework and a global (re) insurance platform through a globally competitive and entrepreneurial ecosystem, and to let 'The INDIA of 2022' become a global center of excellence in four years' time".** The Monograph then moves to the development mandate that demands deployment of behavioral economics propagated by Noble Laureate Richard Thaler of "nudging" with "libertarian paternalism" to create an inclusive Indian insurance market.

Making IRDAI and its Regulatory Framework Transform

1. Regulatory Accountability

The regulatory accountability ought to be around:

- Increase penetration;
- Assume SINGLE Facilitative Ownership; and
- Promote and ensure orderly growth of the insurance business and reinsurance business.

What is also required are the additional specific tasks:

- **Build a progressive global (re) insurance platform –** making India an attractive place to do business, supported by Regulatory Thought Leadership
- **Indian Global Insurance ADR Centre –** supported by a conducive interface amongst Regulator, Industry and the legal fraternity
- **Global Reinsurance Hub –** supported by level playing legal forms/regulations and cluster synergies with Indian International Financial Services Center (IFSC) that is competitive to Singapore, Dubai, London and China, and further supported by consistent and simple tax rules
- **ONE Insurance Vision: An aligned insurance industry –** across

Legislative (the principal and all allied laws), Executive, and Regulatory and the Self-Regulatory bodies

- **ONE Regulatory Ownership with robust mechanisms –** involving Legislative, Regulatory, Market, Taxation and Dispute Resolution streams
- **Development of a country risk management agenda and establishing a comprehensive Risk Management and a robust research center –** Insurance de-risks governments, business and communities. Insurance led researches support the case for more resilient infrastructure and institutions: Evolving risk transfer mechanisms ex-ante forms part of a comprehensive disaster management strategy

2. Regulatory Framework Around 'Prudential Regulations', 'Conduct Standards' and Self-Regulatory Organizations (SROs)

The IRDAI Act, 1999 allows modern adoption of global standards around 'Prudential' and 'Conduct' administration of businesses. While Chapter IV Section 14 (2) (f), (k) and (l) cater to 'prudential' form, the rest of Section 14 (2) caters to 'conduct' requirements. The legislative framework also serves for SROs.

The Prudential regulations need to be around Protection of Policy Holders' interests, Economic Risk Based Capital & solvency norms, Enterprise Risk Management, Corporate Governance, Similar Disclosure norms for Listed and Non-listed entities, Credit/Performance rating by the accredited/International rating agencies etc.

Conduct standards (as opposed to regulations) must focus on risks rather than compliance: Rigorous thematic reviews will yield appropriate insights, and deterrence. Conduct standards fulcrum on 'Contract certainty' (pre-sale) and 'Effective dispute resolution' (post sales servicing), with fraud management standing guards at both ends. 'Products/insurance contracts', their 'Pricing', 'Distribution' and 'Promotion' of insurance including 'Outsourcing' etc. are all 'conduct' issues.

The IRDAI site (**www.irdai.org**) mentions the following entities as the "Self-Regulatory Organisations" (though in reality this is not quite the case except IAI):

1. Indian Institute of Surveyors and Loss Assessors of India (IIISLA)
2. Institute of Actuaries of India (IAI)
3. Insurance Brokers Association of India (IBAI)
4. Insurance Information Bureau (IIB)

The Self-Regulatory Organizations (SROs) must be made responsible for regulating themselves which, however, requires IRDAI commitment and institutional process to allow the SROs to be independent, yet accountable. The SROs lend depth and gravitas to the whole market, thus making it easy for the regulator to harness 'markets' technical expertise', and allow genuine Self-regulatory bodies to cater to significant market functions. These must include Surveyors, Brokers, Insurance Information Bureau and Insurers' Associations.

3. Principle based vs Prescriptive regulations

The world ranking of the Insurance Index has currently placed India at 164th position in terms of Ease of Doing Insurance Business Framework; it is obvious, current prescriptive regulatory regime has not promoted 'Ease of Doing Insurance Business'.

4. Regulatory Anchors for the IRDAI Vision 2022

The following Indian regulatory anchors need to be changed/tweaked, and the market developments accounted for in tune with modern trends, equity/rationale, and increasing the regulatory potential to allow innovation to deepen the Indian insurance market:

a) ***Buyer-beware –*** There is increasing evidence to show that a move away from buyer-beware market is the road ahead in financial regulation. The Sumit Bose report talks of contract certainty at solicitation level. The proposed Indian Financial Code (IFC) that is in various stages of implementation, too envisages this approach. The current regulatory insistence on "insurance being a subject matter of solicitation" is still rooted in the dogma where insurance was considered only "buying". It must change to the criteria involving suitability and contract certainty.

b) ***Pull Market –*** It is not a pull market in India. Financial products are still sold than bought, and distributors play an important role. In principle, there should never be any regulatory bias against intermediation/distribution.

c) ***Product approvals –*** A regulatory regime that takes it upon itself to "approve" or "reject" products make it a regulatory failure in case of a malpractice, malfeasance or even invite anti-trust provisions besides, causing delays. Insurance contracts need to have credible and accredited Law Firms signing them off from the perspective of "Contract Certainty" (as opposed to the current regulatory practice which insist that the Appointed Actuary must sign off product design and the contract wordings). Each Law Firm should be asked to carry a minimum of professional liability coverage.

d) ***Laws and Law Firms –*** Be it globalization effort or the Government driving development, the country has witnessed substantial change in the laws and procedures in the last two decades. The adjudicative mechanism is also gradually shifting from generalized courts to specialized tribunals. The Law Firms not only provide customized services for the interpretation and application of law but also help in deriving logic and arguments to the interpretations. The Indian market has now grown with Insurance Law Firms, Law Firms with dedicated insurance practices, and Foreign Insurance Law Firms with local tie-ups.

e) ***Rate mechanism sign off –*** Where the Actuarial sign off is indeed required is for the Risk Based Pricing mechanism.

f) ***Outsourcing –*** The current IRDAI regulations are premised on two anchors: 1) Outsourcing regulations would prevent over-riding payments to the Intermediaries, and 2) Insurers' activities are of two kinds: 'Core' and 'Non-core' – whilst 'Non-Core' can be outsourced, 'Core" cannot. There is a way to meet with the first, as recommended. The latter premise is anachronistic and does not vibe with global best practices where principally the supervisor requires the insurer to retain at least the same degree of oversight of, and accountability for, any outsourced material activity or function (such as a control function) as applies to non-outsourced activities or functions.

g) ***Insurance 'Awareness' and 'Education' –*** These two terms have different tasks and boundaries: since the insurance penetration is low it also needs public awareness, to be done by the two Insurance Councils. The regulator should not be tasked with awareness creation which is the job of the insurance industry. The other transformative task is to spread education with a secular intent and with ownership neutrality. Therefore, the IRDAI must come out of its ownership of the Institute of Insurance and Risk Management (IIRM) at Hyderabad in partnership with the Government of Telangana where it creates a conflict of interest.

h) Appointed Actuaries – IRDAI's mandate to have Appointed Actuaries work with Insurers needs relooking. If the regulatory requirement is actuarial sign offs on a set of given tasks, it needs to be left with Insurers to fulfil, through internal or external resources, rather than mandating it as insurers' hierarchy.

i) Committees constituted by the IRDAI – Currently, the broad IRDAI working involves forming adhoc committees to deal with a complex / new situation. The recommendations are grafted, fully or partially, on a given underlying base that are often not full-blooded fixes. Additionally, the time overruns keep the Market waiting. The urgency and certainty of direction will come through **specific IRDAI Ownerships**, responsible for a particular work-stream, which in turn can draw upon the expertise – within India or outside.

j) IRDAI web site – On a bipartisan note, it will be revealing to visit the UK regulators' (www.bankofengland.co.uk/pra)/(www.fca.org.uk) and the Singapore regulator's (www.mas.gov.sg) sites and compare them with (www.irda.g**ov.in**) to get a feel of the difference.

The developed markets' web sites are designed to facilitate ease of doing business in terms of:

- Friendly designing;
- Ease of navigation;
- Quality and reliability of information
- Interact ability; and
- Ease of printing and sharing the pages, where helpful to businesses.

5. IRDAI Insurance Advisory Committee

With a view to ensure that the IRDAI and its regulated entities will attract and retain the best talent through a high-performing culture, best practices and inspirational leadership, the direction should come from a revamped Insurance Advisory Committee having the best of Indian and Global financial/insurance/reinsurance leadership, along with sectoral experts such as Healthcare, Agriculture etc.

6. Capital adequacy, Risk management and Governance

Insurance Core Principles, Standards, Guidance and Assessment Methodology paper produced by the International Association of Insurance Supervisors (IAIS), and specifically to Insurance Core Principles (ICPs) 4, 17, 8 and 7, which respectively address the principles which should govern licensing, capital adequacy, risk management and governance.

Within Risk Management and Governance, the principle says "The supervisor requires the insurer to have a risk management policy which describes the relationship between the insurer's tolerance limits, regulatory capital requirements, economic capital and the processes and method for monitoring risks. The regulatory capital requirements include solvency control levels which trigger different degrees of intervention by the supervisor with an appropriate degree of urgency and require coherence between the solvency control levels established and the associated corrective action that may be at the disposal of the insurer and/or the supervisor.

- The prudential regulatory regime in India must start with implementing a risk-based capital supervisory framework that achieves Solvency II equivalence. (the new Indian solvency regime can have linkages with the credit scores around: Protection products, Persistency, Lapsation, Agents' attritions, KYC and the Integrated Grievance Management System) and moving on to cover Licensing, Enterprise Risk Management, Protection of Policy Holders' Interests etc. A mechanism to reward the insurer on factors like higher solvency ratio, low loss/combined ratios, lesser number of policyholder complaints, etc. shall be put in place to encourage growth of the insurers. The Insurers must also be assessed on risk-based capital, and the volatility on the balance sheets will have to be correlated such as correlation of catastrophe and cyber models to underwriting, credit and market risks. This needs to be mandated along with risk-based pricing and assets & liabilities management. It is imperative that we work on

a definitive time frame in India, with tighter time lines ***(the first IRDAI Committee on the Road Map for RBC Solvency approach started on 01.12.2011 and current Committee is looking at implementing the RBC regime by March 2021 – the longest journey perhaps in the world!)*** to get India specific Risk Based Solvency regime as a proactive measure.

- The Capital markets regulator seeks higher disclosure from insurers looking to list. It insists on disclosure of embedded value, policy maturity time table, audit qualification, segment-wise lapsation of policies and profit contribution, among others. For non-life it has to be combined ratio in conjunction with the reserving, among others. The insurance regulator IRDAI should also plan to push for more transparency in the insurance industry by introducing uniform disclosure norms for both listed and unlisted companies.
- The Capital markets panel on Corporate Governance is attempting to push India Inc. to the next level of governance standards and to set higher benchmarks. The IRDAI would do well to borrow its principles and standards and enforce implementation.

7. IRDAI Organization, and its Operations

The Regulator must create specialized knowledge & flatter professional structures, and create accountable ownerships within IRDAI. In order to achieve transformational changes, a strong infrastructure would be required by the regulator including enhanced resource capacity and capabilities. The regulator must also ensure a good mix of talent with deep expertise in the Indian Insurance private and public sector.

Making principles-based Regulations Transform the Indian Insurance Industry

Here are few illustrative examples:

1. IRDAI's regulations and Policy Holders' Interests

The Insurance Regulatory and Development Authority of India (IRDAI) has had twin mandates: *'Supervision'* and *'Development'*. Each required a clear and separate charter. Even if *'Development'* was not easy, going by our general ethos and India's ranks in all the global indices - Human Development, Ease of Doing Business, Opening and shutting down businesses and many others - *'Supervision'* should have been relatively easy at least in its theoretical construct. The Protection of Policy Holders' Interests is one of the fundamental and prudential forms of regulatory governance in the developed markets pitched as a perfect bulwark.

Surprisingly, the IRDAI has been struggling even with the *'Supervision'* mandate: a) The market is made to reel under the weight of the ever-evolving regulatory landscape; Currently almost all '*Conduct Standards'* are issued to the Indian market as '*Prudential Regulations'* though they need to be segregated and pursued differently; '*Conduct Standards'* (though issued as *'Prudential Regulations'*) focus on compliance rather than risks; Neither are '*Conduct Standards'* strengthened on globally benchmarked '*Minimum Standards'* nor are they enforced through strong and deterrent thematic audits on mis selling, infringement of basic policy services' standards and fraud management that ultimately impacts all Policy Holders b) Despite apparent religiosity associated with '*Protection of Policy Holders' Interests regulations',* they are not fulcrumed on *'Contract Certainty'* and effective, modern and reformed *'Grievance Redressal & Alternative Dispute Resolution (ADR) Mechanisms'*.

The IRDAI's regulatory lexicon seeks to protect the interests of the policyholders and have them treated fairly at two broad ends: at the time of sale, by making all the relevant disclosures; and at the time of making a claim by specifying the turnaround time (TAT) for claims settlement. The IRDAI decides: That alternate risk transfers, Financial Guarantees and other modern tools available in developed insurance markets are against Policy Holder's interests in India; That the 'tariff contract wordings', even though not 'contract certain', are not against the protection of Policy Holders interests; That the regulatorily mandated pricing on several products and schemes, though making the insurers lose

capital, are not against the Policy Holders interests. The list goes on. Thankfully Indian Government goes beyond and links unhealthy underwriting practices as against policy holder's interests.

It is clear IRDAI's regulations and approach to protect Policy Holders' Interests are flawed. The systemic inadequacies require fixing up the architectural design. As practiced in most developed insurance markets globally, these are essentially principles-based mechanisms, prudential in nature and, are not reduced to just pre-sale and TAT compliances but are associated with fundamentally sound principles of marketing, management of underwriting, servicing of claims, and attending to policy disputes with alacrity and professionalism.

The 'Contract Certain' principles include insurance contracts getting signed off through credible and IRDAI accredited Law Firms rather than 'IRDAI approved' products, preserving sanctity of basic 'Insurance Principles' in conformity with the Indian laws and jurisprudence, international laws and conventions adopted by India, and include 'Technical Terms' that have valid definitions.

Effective dispute resolution mechanisms (post sales servicing) include Integrated Grievance Management Systems (IGMS), Ombudsman and ADR mechanisms. The Insurance Ombudsman Rules, 2017 need to be improved upon to handle entire traffic of adjudicative processes to be relied upon by the retail customers through insurance specialized Ombudsmen as the Government itself has expressed concern on the efficacy of consumer fora in India for a variety of reasons. Developing India as the Global Insurance ADR (including Arbitration) Hub is also fundamental to the protection of policy holders' interests as Arbitration/Mediation/Conciliation are inexpensive and time efficient in comparison to litigation. IRDAI needs to ensure that all insurance policy contracts have clauses inserted providing for alternative dispute resolution mechanisms, with Indian jurisdictional clauses and seat of ADR settlement being in India.

2. Broking in India

The insurance framework in India has to be made more robust with Global Best Practices serving as bench marks, with due localization. Globally, British Insurance Brokers' Association (BIBA) and the London and International Insurance Brokers' Association (LIIBA) provide credibility and serve as very useful benchmarks.

The Insurance Laws (Amendment) Act, 2015 saw a slew of reforms in the Indian insurance sector, including increasing the foreign investment ceiling in Indian insurance companies from 26% to 49%. The notifications issued by the ministry of Finance and the Ministry of Commerce and Industry clarify that the foreign equity investment cap of 49% also applies to Insurance Brokers, Third Party Administrators, Surveyors and Loss Assessors and other insurance intermediaries.

Given the state of low penetrations in the country, liberalizing and permitting 100 percent foreign ownership in the ancillary services such as broking, risk management, surveying and adjusting professions will help India build globally benchmarked talent and techniques, without any impact on systemic risks as long as Indian talent is groomed and nurtured. This will also help India move towards a better penetrated insurance society.

Insurance Brokers Association of India (IBAI) was incorporated as a Company and the main objects of IBAI are to promote interaction among the Insurance/Re-insurance Broker members and to encourage, promote, facilitate and protect the interests of the members of IBAI and to provide an avenue to the members for further education, training and research in all fields of insurance and re-insurance. IBAI is the only IRDAI recognized body of licensed Insurance Brokers.

The Brokers' regulations, formulated by the IRDAI, however, are not just rule based but also has the controlling hand of the Regulatory Authority despite IRDAI declaring IBAI as the Self-Regulatory Organization (SRO). What is required is a principle-based model for the rightful conduct, servicing and development of the Brokers model that must come from a self-regulated IBAI with the Regulator demanding strict standards and accountabilities through it.

Broking is the most critical Third-Party Channel, which has proved its competence and utility all over the

world. India, therefore, deserves a serious and credible Broking channel. With a view to create a more robust and dynamic Broking channel, the following are recommended:

a) The Broking administration to be run by IBAI, recognized by the IRDAI as the SRO, but must be empowered too;

b) The local brokers should be better capitalized so that they move to more transactional risk advisers but with self-regulatory authority, freedom and consequent greater accountability: Permitting 100 percent foreign ownership in brokers, who play an important role as intermediaries, will see India build expert service providers. Similarly, Brokers could have just two categories; Direct and Composite (including reinsurance), and the Brokers be asked to carry a minimum capital of INR 50.00 million and 100.00 million respectively. The Reinsurance Brokers play a dual role: they represent the Insured as Insurer; however, they provide also underwriting information to Reinsurers on behalf of Insurer regarding the client.

c) The license should be for perpetuity unless there is a gross misdemeanor found per strict code of conduct standards evolved by the IBAI.

d) Brokers should be allowed to have binding underwriting authorities from insurers strictly subject to mutual written agreements detailing the type and extent of authority etc. This is a very strong tool for penetrating market segments such as SMEs.

e) Brokers should be authorized to use the services of a sub-Broker.

f) Abolish compulsory training for Broker examination, and let IBAI work out an alternate structure.

g) There is currently a ceiling on business from a single client – an insurance Broker cannot procure more than 50%, 40% and 30% of its total premiums from a single client in the first, second and third years. This needs to be reviewed – even if it means having captive Brokers.

Making Principles-Based Regulations Transform the Life Insurance Industry & A Case for Differential Regulatory Supervision

There is a significant headroom available for growth due to low penetration, protection gap and favorable demographic profile. With a view to fully tap this opportunity, it is imperative that the challenges are met squarely, and the roadblocks are removed that deter growth. Given this background, the life insurance products need to be designed in such a manner that the interests of the customers are always protected. These can be ensured by making the products secure and simple from the customer perspective.

1. Public disclosures

The persistency disclosures norms should be made mandatory as per the product category both in terms of number of policies and premium. This will enable the Regulator and the Insurance companies to understand and appreciate the impact of persistency on the policyholder, which would further enable the insurance companies to attach top priority for policy servicing.

2. Regulatory Framework

The Regulator can transform the Industry with a principle based regulatory framework that is more output driven. This will lend itself to the ease of doing insurance business and drive efficiency both for regulator as well as market players. The approaches include:

- Implement Risk Based Solvency that links the capital requirements to the risk inherent in the business. This way, insurers will be self-regulated to optimally manage the risks in the business
- Use and File of products based on broad defined principles, and risk-based pricing
- Management of distribution model – Defining the broad code of conduct standards, watchful eyes and basis a scoring of the business model specific interventions as may be required.
- Outsourcing – provide operational flexibility but make Insurer fully responsible

The below framework provides a possible new approach:

Parameters	Weight	Tier 1 companies Score – 100*weight% for each	Tier 2 Companies Score – 70*weight% for each	Tier 3 Companies Score – 50*weight% for each
Year of Operation	10%	12 years onwards	6-12	1-6
Total AUM	10%	>20K	10K-20K	<10k
Solvency Ratio (To be calibrated for Risk based solvency)	20%	>250%	175%-250%	< 175%
Expense Ratios	20%	< 20%	20%-30%	>30%
Persistency (13 Month)	20%	> 80%	80%-70%	<70%
Accumulated losses	10%	Nil	Nil to 500 Cr	>500 Cr
Credit/Performance Rating by International Agencies or any external certification	10%	To be agreed	To be agreed	To be agreed

A scoring system may be adopted to identify the level of regulation applicable to the respective industry players. The differential regulatory requirements for these 'Tiers' could be as follows **(Illustrative):**

Tier	Regulations	Details
1	Limited Minimum Score of 70	- Use & File permitted with certain principles based restrictions e.g. RIY on UL, IRR on Non Par etc. - Outsourcing allowed – Onus on Insurer - Largely self-regulated – Self Certification - Minimum submissions required - Provide further details when requested - Investigation frequency – Once in 5 years
2	Moderate Minimum Score of 50	- Limited Outsourcing - Use & File for transparent products like UL (RIY restrictions), File & Use for Par, Non Par & other products - Only Specific submissions required - Investigation frequency – Once in 3 years - Certain Company level capping on expenses
3	High & Prescriptive Score below 50	- All Product approval required - Expenses of Management regulated at segment level - Activities monitored - Extensive submissions and supervision - Investigation frequency – Every year - Distribution Management regulated - Close supervision of Management appointments

There is a strong view that domestic consumption will accelerate India's growth, and the only place where India can achieve economy of scale is in services.

3. Progressive Tax Policies for pure term products

The size of the Indian life insurance market is very small as compared to the size of the health insurance and motor insurance market. This problem can be tackled effectively by increased sale of pure protection products. With a view to enable and encourage this thought, it is recommended that a separate section for deduction under Chapter VI of the Income Tax Act be evaluated for pure term products without any element of savings attached to them.

Making Principles-Based Regulations Transform the Non-Life Insurance Industry - An Agenda for a Modern Global Underwriting Platform in India

The bedrock for a global underwriting platform capability building is a modern, rational, and progressive approach and application. Public trust and consequent penetration of non-life insurance in India can improve only through risk-based capital norms, modern solvency management, strictest actuarial evaluation of insurance liabilities, and transparent functioning of all its entities with credible standards.

1. Risk Based Capital and Solvency II

2. The Inevitability of Listing

3. Credit/Performance Rating by International Agencies or any external certification is important.

4. Sustainable and Innovative Underwriting

Insurance is not sustainable if it is offered at rates below what is required by sound, risk-based actuarial practices. When not, risk based, the wrong price signals are sent and there is little or no incentive to mitigate risk. The Regulatory reporting and auditing of the insurers should heavily concentrate on combined ratios. It is a prudential issue.

5. Reserving

The general reserving standards in the Indian market:

- Peer review is voluntary and established market standards for reserving such as Premium Deficiency Reserves and run-off triangles for IBNR are not prevalent
- The Industry research initiatives are lacking such as GIRO (General Insurance Research Organizing, UK conventions and working parties
- Absence of Indian GAD (Government Actuarial Department) to help with steps such as publishing standard claim diagnostics on a) Average claim size b) Frequency and c) Settlement delays etc.

6. Micro insurance – Specialization v Quotas

The regulatory office should supervise and develop through an active understanding of the market and not through slapping of quotas and regimenting through a penal regime.

7. Subscription Underwriting Model vs. Business of co-insurance

The business of co-insurance in India is run at the market discretion (Insured) rather than insurer discretion (in terms of its capital allocation, solvency margins and reinsurance protections) which is administratively burdensome and financially incongruent, including counter party exposures. The market must be nudged to move to subscription approach rather than getting stuck to monopolistic practices of yore.

Conclusion

There is a strong view that domestic consumption will accelerate India's growth, and the only place where India can achieve economy of scale is in services. Financial services, including insurance, exert a major impact on the long-term economic growth. India has a single market for insurance, and the Government has a clear policy objective: to have a fully insured India and a fully pensioned India. The Indian Insurance Regulator must, therefore, act as a Friend, Philosopher and a progressive Guide to the Indian market. He has to be a change agent for making India's present secure and future safe.

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Any topic on insurance or allied areas.

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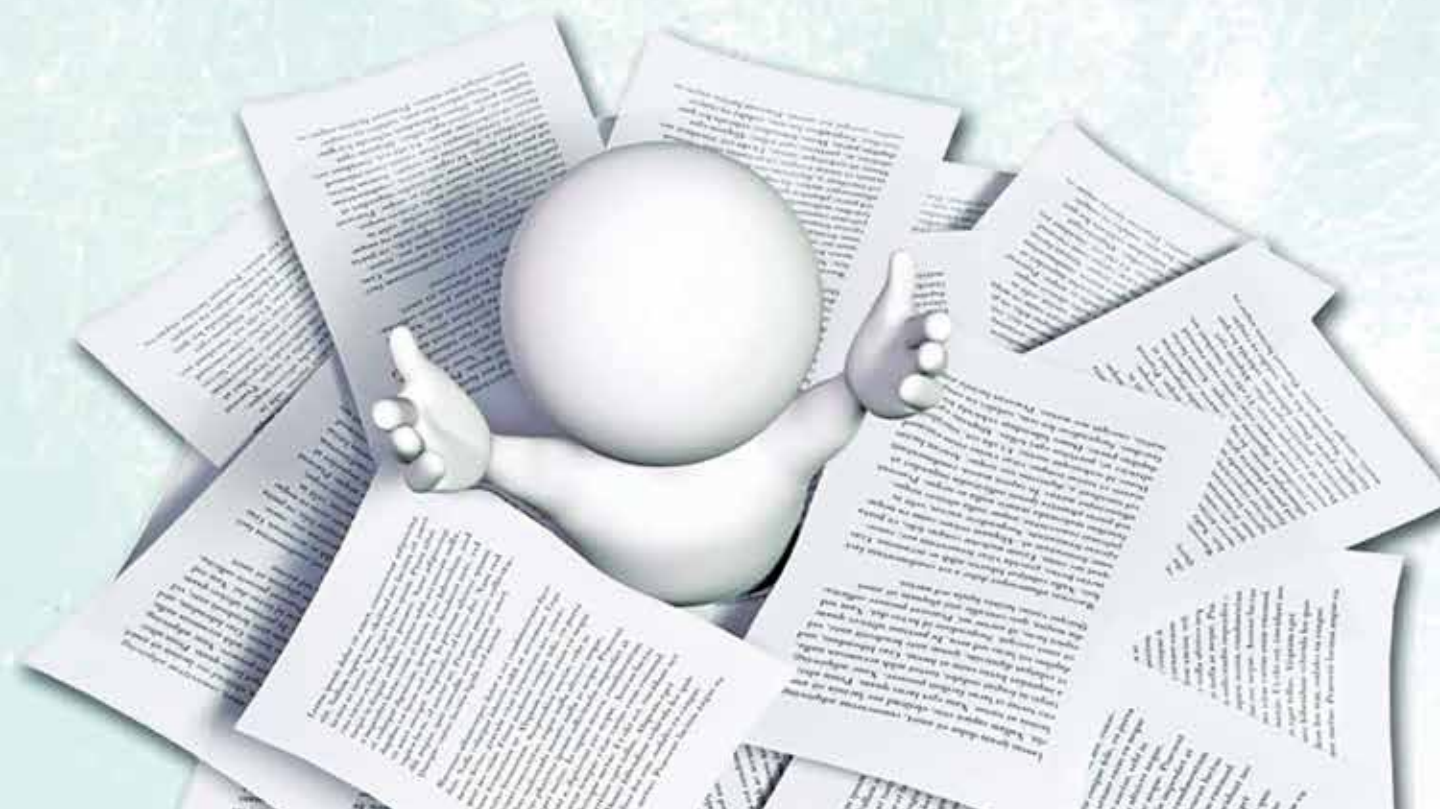

Guidelines for Contributors of the Journal

Note to the Contributors:

"The Journal" is quarterly publication of Insurance Institute of India, Mumbai. It is published in the month of Jan/April/ July/Oct every year. "The Journal" covers wide range of issues related to insurance and allied areas. The Journal welcomes original contributions from both academicians and practitioners in the form of articles, research papers, case studies, special commentary and book reviews. Authors whose papers are published will be given honorarium and two copies of the Journal.

Guidelines to the Contributors:

1. Manuscript submitted to the Editor must be typed in MS-Word. The Length of the articles and case studies should not exceed 5000 words. Research papers length can be upto 10,000 words. For book reviews and commentaries the word limit may be upto 1500-2000 words.

2. General rules for formatting text:
   i. Page size : A4 (8.27" X 11.69")
   ii. Font: Times New Roman – Normal, black
   iii. Line spacing: Double
   iv. Font size: Title-14, Sub-titles– 12, Body- 11 Normal, Diagrams/ Tables/Charts– 11 or 10.

3. The first page of the Manuscript should contain the following information: (i) Title of the paper; (ii) The name(s) and institutional affiliation(s) of the Author(s); (iii) email address for correspondence. Other details for correspondence such as full postal address, telephone and fax number of the corresponding author must be clearly indicated. The category of submission should be specified either as a research paper, article, review, case study etc.

   Point no. 4, 5, 6 and 7 are applicable only for articles, case studies and research papers.

4. **Abstract:** A concise abstract of maximum 150 words is required. The abstract should adequately highlight the key aspects or state the objectives, methodology and the results/major conclusions of analysis. The abstract should include only text.

5. **Keywords:** Immediately after the abstract, provide around 3-6 keywords or phrases.

6. **Tables and Figures:** Diagrams, Tables and Charts cited in the text must be serially numbered and source of the same should be mentioned clearly wherever necessary. All such tables and figures should be titled accurately and all titles should be placed on the top after the number. Example: Table 1: Growth Rate of Insurance Premium in India (1997-2010).

7. **References:** all the referred material (including those from authors own publication) in the text must be appropriately cited. All references must be listed in alphabetical order and sorted chronologically and must be placed at the end of the manuscript. The authors are advised to follow American Psychological Association (APA) style in referencing.

   Reference to a Book: Author. (Year). *Title of book*. Location: Publisher.

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8. Usage of abbreviations in the text should be avoided as far as possible and if used should be appropriately expanded.

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10. All the submissions would be first evaluated by the editor and then by the editorial Committee. Editorial committee may require the author to revise the manuscript as per the guidelines and policy of the Journal. The final draft is subject to editorial changes to suit the journals requirements. Editorial Committee also reserves its right to refer the article for review/ delete objectionable content/ edit without changing the main idea/ make language corrections/ not to publish/ publish with caveats as per its discretion. The Author would be duly communicated with such decisions.
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12. Please send your manuscripts to

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13. In case the author has submitted only the hard copy, an electronic version of the manuscript would be required once the paper is accepted for publication.
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1. The book review should be of a book published in recent years (current year or previous year).
2. The review should not be more than 2000 words; word limit can be more/less depending on the scope of the book.
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4. The references should be kept to the minimum or completely avoided in a book review.
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6. The review should not be just a summary of the book, but it should bring out the essence of the book and focus on the objective, theme, scope of coverage, etc. The book review should put forward an objective and fair opinion about the significance, strengths and weaknesses. The review should be about the books contribution to the subject rather than what the reviewer feels about the book.
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1. Cases usually describe complex issues and readers are forced to take optimum decisions/action in a dilemmatic situation. Cases are meant to create challenges of decision making in the mind of readers regarding conflicting situations, insufficient information, dynamic environment and the like.
2. The authors of the case studies can take organization specific or industry specific issues and present the facts of the case in a logical way.
3. The case study should be well documented and well researched and must be realistic in its context and relevance.
4. Sufficient data (primary or secondary) should be incorporated within a case study for discussion and generating alternative solutions and identifying the best possible alternative. Prior approval for disclosure of information (company specific) must be taken by the author wherever applicable.
5. The issues that are raised in the case should be focused and must be effectively presented without any ambiguity or contradictions.
6. All the referenced material should be adequately and accurately cited at the end of the case.
7. Discussion questions can be provided at the end of case (optional).

Appendix I

Declaration by the Authors

I/We (Full Name of the Author(s))……

……, hereby declare that I/We are the author(s) of the paper titled

"……"

(Title of the paper), which is our original work and not the intellectual property of any one else. I/we further declare that this paper has been submitted only to the Journal of the Insurance Institute of India and that it has not been previously published nor submitted for publication elsewhere. I/we have duly acknowledged and referenced all the sources used for this paper. I/we further authorize the editors to make necessary changes in this paper to make it suitable for publication.

I/we undertake to accept full responsibility for any misstatement regarding ownership of this article.

…… **……**

(Signature Author I) **(Signature Author II)**

Name: **Name:**

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20	CP	G28	Business Interruption	10-11 Dec., 2018	₹ 8600 + G.S.T.	₹ 6200 + G.S.T.	Junior Middle Level Executives of General Insurance Companies / Brokers / Surveyors / Customers and Buyers of Business interruption policies.
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January 2019							
23	CP	G29	Marine Cargo Insurance	7-10 Jan., 2019	₹ 17200 + G.S.T.	₹ 12400 + G.S.T.	Junior and Middle Level Executives dealing with Marine Cargo Insurance Companies, Brokers and Surveyors.
24	CP	G30	Claims Management of Property Insurance	14-15 Jan., 2019	₹ 8600 + G.S.T.	₹ 6200 + G.S.T.	Junior Middle Level Executives of General Insurance Companies / Brokers / Surveyors / Customers
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