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INSURANCE
IN THE INFORMATION ERA

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EDITORIAL

We are already in the knowledge economy. The developments in information and communication technology (ICT) have accomplished what Alvin Toffler termed as "The power shift" – from physical prowess and financial capital to knowledge as the central resource which turns the wheels of economy. With accelerated change and disruptive innovation becoming the order of the day, the post - industrial landscape is a veritable graveyard of once powerful corporations that have bitten the dust.

ICT has impacted every industry and insurance is no exception. The earliest transformations to be ushered were in the areas of Transactions Processing and Decision Support Systems [DSS]. They not only automated processes, but also revolutionized managerial functions. Meanwhile, the onset of RDBMS paved the way for fundamental re-engineering of processes and organization structures in the life insurance industry. The blitzkrieg continued with the rise of the internet, customer databases – data warehousing and data mining. The coming decades of the twentyfirst century would see new frontiers being opened up in areas like Ubiquitous Computing, Artificial Intelligence; Analytics; social networks…the list goes on.

What does this mean for the insurance industry? No doubt, insurers like other financial institutions have been quick to jump on the bandwagon and reap the benefits that the information economy has to offer. At the same time, there is a moot question that rises: has the industry been able to understand where it's increasingly digital and information savvy customers are headed. Corporate enterprises (including insurance companies) of the smokestack industrial order were largely geared to creating goods and services that purported to meet the basic needs of individuals/households. They vigorously pushed their product/service offerings as solutions to these needs. Twenty-first century consumers - especially those of the millennial generation (born after 1980) and generation Z (post 2000) are in a different mind space. Aspirations go beyond meeting of needs; there is also a craving for new experiences and a quest for meaning. The twenty first century would call for much more than technological innovation. It would also entail a revolution in the way we understand, communicate and engage – the message becomes as much, if not more important than the medium.

In this issue we bring you a number of interesting articles on various aspects of the information revolution and its implications for insurance. We hope it would stimulate fresh thinking and explorations of new possibilities to create value and thrive.

Insurance in Information Era

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Abstract

The Article presented sheds some light on the information explosion that took place in the last decade and on discusses how the world became a global village due to increased internet connectivity. In the view of these, customer behavior is changing. Customers are demanding unified experience across various service providers. The article also talks about how these changes are forcing Insurers to redefine their digital strategy and the various decisions which need to be taken for digital transformation. The article further talks about various challenges which the insurers face and how they can leverage this information explosion across their value chain.

Insurance in Information Age

A famous quote goes by "In the Age of Information, Ignorance is a choice". The world of Insurance is experiencing information explosion. Since 2008, the growth of international trade and finance flow has been flattened or decline, but digital flows are soaring. The world is more interconnected and emerging economies are a part of more than half of global trade flows. The cross-border bandwidth has grown 45 times larger than 2005 and is projected to grow by another nine times in next five years[i]. Some 900 million people have international connections on social media and 360 million take part in cross-border e-commerce.

[i] *Mckinsey Global Institute. March 2016.Digital Globalization: The New Era Of Global Flows.*

Insurance being a business relying on insights from data one needs to answer some important questions before committing to Digital transformation and deciding the future course of action for any organisation[ii].

Identifying How Much of the Insurer's Business do They Need to Digitalize?

In most of the developing countries, digital transformation among insurers is not moving fast. From the figure 1 below, it can be seen that Non-life insurers fall in the middle of this slow-moving to fast-moving continuum as the transformation is more advanced in certain developed countries across certain lines of businesses.

The degree of digitalization as required by the organisation depends on its present state of digcal mix (Digital-Physical mix) and organisation's business goals. Though each digital transformation is organisational specific, certain features are present across the insurance industry. They can be basic digital initiatives like customer self service and online quotes generation or advance initiatives like policy management, integrated claims management and Big Data analytics for pricing and underwriting.

Identifying the Correct Speed for the Transformation

Moving too fast or moving too slow, both present their own sets of opportunities and risks. To be a frontrunner requires moving fast to stay ahead of the nearest competitor and keeping an eye on competition from other geographies and industries. Being a frontrunner help an organisation to capture market share through economies of scale. But it also faces the risks of prematurely advancing much ahead of time, spending heavy capital and resources and sometimes crossing over the line of contention with the regulators.

Slow mover face the risk of losing considerable market share and human capital due to its laggard nature. To counter the impact of risks on organisation's future growth, insurers are partnering social media marketing firms to capture customer insights and develop contents for existing and prospective customers.

Deciding Whether the Transformation to be Integrated or a Standalone Identity

There are several factors which have to be considered before deciding the strategy. Firstly, insurer should evaluate the risk posed by digitalization on the existing channel. Sometimes, the online sales channel cannibalize the existing agents and brokers channel sales, as happened in the case of multi-brand retailers and the online marketplace like Amazon & Flipkart.

Secondly, insurers should assess their existing resources and need to ramp up the capacity if and when required during transformation. This can lead to further investment in terms of capital and knowledge transfer.

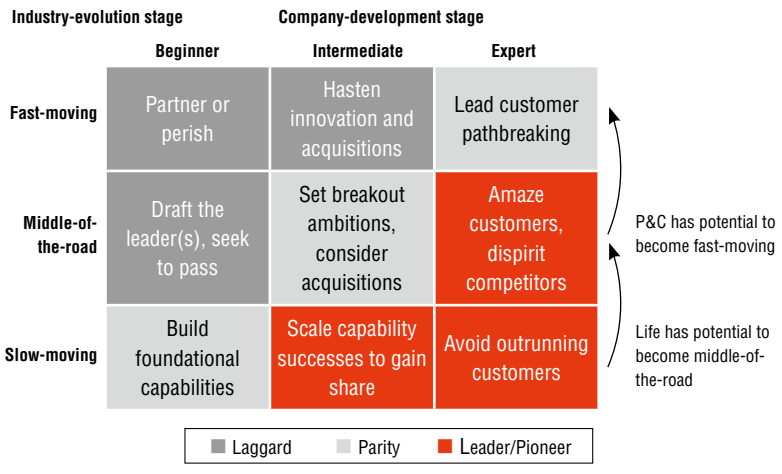
Thirdly, insurers should evaluate their existing brand perception. If the brand itself requires much effort then new offerings in terms of digital won't help the organisation.

Evaluating Options to Alleviate Associated Transformational Risks

Major risks come from the resistance against cultural change and traditional mindset about investments. To alleviate the risk, the digital transformation should be a two-pronged exercise. The first exercise should be the high-value, low-risk initiatives having well-defined needs and having clear path of implementation.

The second exercise should be high value, high risk initiatives mainly a game changer. These are implemented

Figure 1 : **An insurer's next steps depend on its situation**



Source: Bain & Company

[ii] *Bain & Company. November 2014. Leading a Digical® Transformation in Insurance.*

> Slow mover face the risk of losing considerable market share and human capital due to its laggard nature. To counter the impact of risks on organisation's future growth, insurers are partnering social media marketing firms to capture customer insights and develop contents for existing and prospective customers.

through pilot projects with constant testing and learning along its validity to be a viable product.

Digital innovation requires the need to build a strong team of leaders throughout the organisation who can be change agents for the required cultural change throughout the transformation timeline.

Challenges in Adopting Truly Digital Transformation

Insurance industry works on the expected realization of the insurance product and offers an intangible value until it is realized in the wake of triggered unfortunate event. Insurers are no longer just a failsafe financial security provider but over the years they are being moved into same bracket with other customer service providers like retailers, banking services, online-marketers etc. This has forced insurers around the world to analyse themselves from a 360 degrees perspective to come at a level of customer service as expected by their existing and potential customers. While information and big data in conjunction with data analytics solutions has powered the insurers to identify and strategies based on customers' need gap analysis, there are certain inhibitors bumping the smooth transition journey for the insurers.

Insurers are Crippled with Legacy Systems

Insurance industry around the world is engulfed into network of legacy systems more than in any other industry or sector. Integrating their core system with new emerging solutions and platforms has been a time consuming, expensive and long process, which becomes a daunting task for many insurance companies.

Neither the Insurers nor the Customers can wait till the core legacy system is revive and integrated with the emerging and effective solutions. Insurers can't hold on their innovation cycle, product development exercises and underlying operational efficiencies till the integration is complete. On the other hand customers will not wait for the integration to experience the proactive digital services what they are actively seeking.

So, to keep themselves ahead of the competition curve, the Insurers need to begin the process of integration and innovation by implementing pilot projects and incremental solutions based on the best available option. Once the success of pilot projects and incremental solutions are proved then they can be brought into the core system to leverage their success in an organisational level.

To Move to Cloud or Not To

The more digital the world is going to rely on, the more security concerns they are exposed to. The increasing numbers of cyber attacks from unidentified groups and source has not done enough to alleviate the fears of insurance industry. Given the nature of sensitive customers data handle by the insurance companies, they remain unsure about the deployment of cloud services and invest their capital, resources and time for having a physical infrastructure at their own premises.

In a study, it has been found that it requires an additional annual investment of substantial amount to run an application on an in-house IT infrastructure. Not only it kills the capital involved, but also the time involved to set up the whole application environment. This can be detrimental to an insurers' competitive edge as the technology around is changing too fast putting significance on plug-and-play model mainly supported by cloud systems.

Given the cost-benefit scenario of on-premise deployment as compared to cloud based applications, more and more insurers are moving away from deploying physical IT infrastructure and are opening up to cloud based applications.

Once an organisation made the decision going for cloud based applications, before an all-out approach, it would be better if the development and testing of pilot be done on public cloud. This will not only minimise the TTM (Time to Market) but also the cost of failure. Another approach which the insurers are fast accepting is the CIA (confidentiality,

integrity and availability) model for making a choice between cloud based applications or in-house physical IT infrastructure.

Poor Reallocation of Appropriate Resources

Insurers are more often than not found investing in large-scale technologies to renew their core systems with the new emerging and innovative solutions and platforms.

This large scale transformation takes up much of the resources and time of the IT department and choosing between the competing priorities is just not possible.

These give rise to one of the biggest challenges in insurer's operational efficiency and product deliver cycle due to the implicit unwillingness and inability to reallocate appropriate resources.

Allocation of a dedicated, cross functional team for product development and innovation is the need of the hour which will help the core system up and running along with delivery of innovative and efficient products.

Breaking the Cultural Barrier

Most of the time culture becomes the major hindrance in limiting insurers' ability to deliver innovative products as innovation treads on the line of uncertainty and the outcome of the same remains unknown.

Organisation needs to have in place right people and processes including the organisational structure with a willingness to change the over-encompassing corporate governance model to alleviate the bottlenecks.

In order to bring the required skills to combat the cultural barrier, the role of change agents become very important in deliberating investment, resource allocation, level of engagement with all the stakeholders.

Fighting the Mindset of Risk Aversion

Insurers who wants to transform themselves into truly digital insurers requires an overhauling of existing structure which seems to be quite risky given the conventional and orthodox mindset at the core of the organisation. Transformation comes from developing and implementing new service delivery models and restructuring of business processes.

To extract value from the transformed business models, multiple reiteration and mutual coordination between the business processes and developers is required.

Organisation needs to be accommodating while implementing a low-cost rapid experiment and have to required willingness to fail early so that they figure out the path of success sooner. This also requires development of a common platform for effective dialect between the business and the IT team, thus fostering a healthy environment.

How Information will Shape the Insurers of the Future

Information has become a commodity in the recent age of connected devices and businesses. Myriad of sources generate terabytes of data which will provide rich insights through big data analytics. Changes in personal circumstances will provide an opportunity for up-sell and cross-sell products which are better fit with the customers future needs.

Utilising Information for Profitable Product Development

Auto Insurance: As per the SAS white paper titled *"Telematics: How Big Data is Transforming the Auto Insurance Industry",* Auto insurance can take shape of any of the two following options in the near future. PAYD or Pay-As-You-Drive insurance where the customers are charged as per the distance covered. Some of the insurers in the developed nations are already using this model of auto insurance. One such insurer in South Africa, Holland Insurance is already using this model for its customers along with other mileage based options. Other option which is gaining traction in auto insurance is PHYD or Pay-How-You-Drive which make use of telematics to capture driver's behaviour including speed, acceleration, cornering, lane changing, braking, fuel use and geographical location. In case of claims, Insurers make use of the data captured to recreate the scenarios under which the accident happened.

Health Insurance: A new trend in Health Insurance which is gaining popularity is moving from protection based insurance products to prevention based insurance products. This has been made possible on incremental use of the wearable and other sensor technologies. Insurers gather various from plethora of sources like from body sensors to monitor food intake, exercise and activities data from gym equipments and wearable, social media interaction on food habits and dine-outs, purchase records from retail chains, etc. All these information are integrated and analysed to reach a premium amount for the individual. The insurance products are so designed to motivate people to exercise and thus avail discounts or value added services (VAS). Along with the above

information, insured person's health profiling can be ascertained based on their genetic profiling and use of behavioural analytics as these can affect the health claims.

Property Insurance: Coming of age, Property & Casualty insurers are also moving towards the adaptation of real time data from various sensor technologies. They are working with telematics to design usage based home insurance products. Companies like ADT, a pioneer in specialized smart home security solutions have extended their offerings with home-insurance based on various smart sensors installed at their customers' home. Insurers are also increasingly using data from security cameras, occupancy sensors, leakage detectors, etc. Predictive analytics on the captured information can help insurers to avoid high claims risk.

Using Big Data & Analytics for Fraud Detection

Based on the latest report by PWC, 82% of the interviewed insurance executives across the world have cited Data & Analytics among their Key Strategic Measures in the near future. Given the unstructured claims data available with the insurers, insurance firms are keen on adopting big data for fraud-prevention and security purposes. According to Coalition Against Insurance Fraud (CAIF) figures, planned insurance frauds amounts to $80 billion every year in USA alone. As from the study, there is an annual increase in premiums by $400 - $700 on an average on due to fraudulent claims.

While set business guidelines and database searches have proved successful in detecting fraud patterns, there is an increasing need to improve the capabilities to identify and segregate unknown and complex fraudulent activities.

Due to the flood of claims data from various sources like physical documents, phone calls, online claims management portal, social networking websites, SMS, blogs and fax, a need for a centralised and integrated claims database management system powered with capabilities like incongruity or anomaly detection, unstructured data mining, predictive modelling and social network analysis.

While Data mining tools help insurers to analyse information from varied data sources like medical bills, police records, external databases in view of Natural Catastrophes and internal database sources as well as e-mails, Predictive modelling use the historical fraud events to develop a rating mechanism which will score future claims against their likelihood of being fraudulent.

Anomaly detection helps in reporting outliers based on the set benchmark associated with various key performance indicators. These anomalies might indicate an unknown or a new fraud pattern. Increased Social media interactions are also captured by the insurers to establish network & relationship connections for a more effective and efficient fraud investigations based on past social media activities.

Tapping the Social Media Revolution

The unprecedented rise of social media in last few years has blurred the service expectancy line among the service providers. Customers expect the same unified experience across service providers and any discontentment in

Social media has made the advertising a level playing field irrespective of the budgets between the small and large insurers by helping technically advanced insurers to reach far greater prospective customers at a relatively low cost.

service level is blotted out of proportional through viral posts and tweets on social media tarnishing the organisation's brand image. Insurers around the world are now in the midst of these social media revolution and only those insurers will have the competitive advantage that has the capabilities to derive practical insights from these huge piles of unstructured social media data.

Creating a Successful Brand Image

Social media has made the advertising a level playing field irrespective of the budgets between the small and large insurers by helping technically advanced insurers to reach far greater prospective customers at a relatively low cost. Effective social media metrics like brand promotion, brand references, situational analysis and customer feedbacks should be correlated with business performance metrics of premium growth, profitability and risk accumulation to make informed marketing decisions.

Creating Positive Moment of Truth

Insurers stake their reputations everyday during countless "Moments of Truth" with the existing or prospecting customers either during sales pitch or during claim reporting. Social media data coupled with data analytics help the field agents and brokers to bridge the prospective customers' future needs and thus drastically reducing the volume of frustrating cold calls.

Similarly, in case of natural catastrophes, social media data has helped insurers identify and assist genuine claims during the distressed time. Mapping social media images and profiles over the catastrophe-stricken area help insurers to make preliminary damage assessments and send the required assistance to the policyholders. These kinds of interactions will help in positive insurer's brand metrics through positive perceptions and create "policyholders for life".

Social Media as Source of Predictive Information

Apart from assisting insurers in product development through need-gap analysis and various claims related issues, social media data may also helps in risk assessment. In certain developed markets like North America, social review sites offers insights into the risk characteristics of small businesses. These insights when treaded on carefully, could present an opportunity to reduce the claims handled. These small businesses can then be motivated through discounts or no claims bonus points based on their incremental improvement in various problem areas, thus improving their overall reviews on the social review sites.

These risk assessment approaches can be a way forward given the customer connect and incentives offered along with promoting safer habits.

Profitability through Customer Lifetime Value

For a non-life insurer profitability comes not only through better claims management but also on the total value a customer brings to the company over his/her lifetime. On-boarding customers lead to increase in advertising expenses and price discounts yield lower returns, so the management focus has now changed towards customers' retention that make multiple purchases over their long association with the insurers.

Social media data helps insurers to make informed and improved life-time value decisions because of raw insights into the prospective customers' behaviour. These information also provides insurers the opportunity to cross-sell and thus also contributes positively towards insurers brand perception.

Conclusion

In the view of the changing trends, impactful interactions of information glut across the insurance value chain; and insurers have to prepare themselves to embrace the disruptive revolution. Consumer behaviour is evolving in leaps and bounds and more and more customers are expecting that insurers will provide offerings as per their specific future insurance needs.

Insurers would also require moving into strategic partnerships with technology companies to tap into these opportunities. These strategic partnerships will ensure creating an environment conducive for innovation and sharing of tools and resources for developing potential prototype solutions.

Insurance in the Information Era: A Study on the Impact of Digitization on the Insurance Sector

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Abstract

Information era has presented the Indian insurance sector with a plethora of challenges as well as opportunities. An insight into these will benefit the insurance sector. This research delves into the types of challenges that the insurers face in the information era and the means by which they can deal with them. Advances in technology have given rise to newer forms of risks like cyber risks and data breaches. As per reports, the percentage of fraudulent claims is increasing by 20% every year. So, on one hand insurers have to make effective use of technology and information to grow the customer base. On the other hand, they have to be agile in resolving the risks arising due to the technological advances.

Available literature and media reports show that in India there is a fierce battle between public insurers and private insurers to garner mind share and market share of customers. Information era presents the sector with opportunities galore to increase insurance penetration in the country and enhance customer satisfaction levels. The findings of the research reveal that greater vigilance, checks and controls will be needed by insurers to stay away from malicious and fraudulent claims. Insurers have to deal with new kinds of exposures in the information era. Effective use of data will continue to be a challenge however. The concern in the future is not going to be information but information overload. The paper also traces the developments in the insurance industry that have resulted due to availability of sophisticated technology.

Keywords
Information era, digitization, information technology, insurance, data analytics, risks.

Introduction

Information technology has revolutionized the way insurance business is being conducted. Information technology has proved to be essential not only for growing the insurance business but also sustaining it. Insurers who have redefined their strategy in response to the growing relevance of technology have managed to stay afloat in the business. They have used a gamut of strategies to enhance customer satisfaction (Honarbari & Alidoost, 2013).

Swiss Re believes that the combination of a growing middle income sector in Asia especially in emerging markets, the low insurance penetration and China's one belt, one road policy will make Asia the biggest insurance market in 2017.

Since 2013, the 'One Belt, One Road' (OBOR) initiative has become the centrepiece of China's economic diplomacy. The essence of OBOR is to promote regional and cross-continental connectivity between China and Eurasia. The 'One Belt' and 'One Road' refer to China's proposed 'Silk Road Economic Belt' and 'Maritime Silk Road'. Connectivity covers five major areas of interest: policy coordination, infrastructure construction (including railways and highways), unimpeded trade, financial integration and people-to-people ties. Among these, infrastructure construction is the dominant feature of the New Silk Road.

The insurance industry in Asia is in its 3rd phase of development, in economic growth, in income growth, solvency reform & personal lines. Premium income from health and life insurance in Asia is on an upward trend due to demographic changes and need for health care.

In the information era, information technology has not only made the world more connected but it has also made development more accessible. Information has become more accessible in the information era. With a single click on Google, we have loads of information accessible to us. This increased access to information has been radically changing our lives since the last decade. The information regarding our insurance policies is now easily available.

Rapid acceleration of information evolution is characteristic of information era. Growth in IT has led to complete transformation of traditional business paradigms. The insurance organisations are networked organisations today. Information era has led to expansion of insurance business across geographic barriers. There is more consistency between needs of customers and products and services that are available to them. Innovative technologies have resulted in a rapidly expanding base of customers cohesively held through relationship management protocols.

Insurance industry has experienced major transformation due to rapid advances in information and communication technologies. Internet has played a role in marketing and sales of insurance products. New capital markets have emerged to cater to needs of reinsurance.

We are in the middle of the information era. Businesses are relying on computer systems to store, share and process almost every transaction imaginable. Employees have access to sensitive information. Companies may still be grappling to have adequate company policies and procedures with regards to accessing information.

In the Western world, companies are selling Network Security and Privacy insurance. This coverage is designed to cover a data breach after the loss of information and can protect an insured from the loss of information.

This paper takes a detailed look at the changes that have swept the insurance sector in the information era. Challenges need to be dealt with and opportunities presented by information era have to be leveraged by the insurance sector. Newer forms of risk need to be managed. While dealing with these challenges, the insurers must also have focus on customer centricity.

Information Advantage

The momentum of IT innovation is dramatically shifting towards digital transformation. The millennial generation is becoming the driving force for change. Millennials, born from 1980 to 2000, grew up with Amazon, Google and social media accessible via mobile devices and computers in their hands, on their wrists, and in their bedrooms. They have an entirely new framework for customer interaction. All generations benefit from customer-centric and environment-driven digital technologies. Consumers now expect to buy what they want to buy, when and where they want to buy it, with the ability to find the item at the best price.

The information era boomed from the early 90s and until 2008, this coincided with a golden era for financial services. Information seldom played a role in profitability. Even when insurers made mistakes about risk, they were

not unduly affected by this because economic conditions were good. Today the situation has changed. Financial services companies are now part of an information-driven industry. Prices have become transparent. Competition has intensified. Margins are under pressure.

Differential use of information by competitors will change the mix of clients for every firm. Information has now become the driver of earnings. Unless an insurer understands this and builds information-adaptability as part of organizational strategy survival can become tough in the long run.

Information can drive revenue growth, cost reduction and risk management. It has to be noted that information and misinformation can be two sides of the same coin. A firm's absorptive capacity of information must be predicated by its analytical capabilities and its controls.

A few private insurers have now created positions like "Chief Information Officer" which could not have been imagined two decades ago. Outsourcing the competency required for information processing is a good move in the short term but in the long run an insurer will benefit from having such a competency in-house. This may be the reason for creating positions like that of a "Chief Information Officer". Such a move will create a unique competitive advantage for the insurer in the market.

Smart phones have created an expectation that data should be available anytime and anywhere. Application development for mobile devices is growing at a blistering pace. M-commerce is rapidly gaining ground and e-wallets are replacing traditional wallets.

Information is not a panacea and change management can be daunting. Power of information should never be underestimated. The nature of information available is changing. The cost to store information and process it has reduced. Specialists and experts are available to help a company deal with their information processing needs.

Let us face it, the world is changing. Change is constant and even more-so in the information era, the speed of change has put the pedal to the floor. There is no secret formula to attract new customers and retain existing customers. What is needed is a smart and pragmatic approach. Information era helps an organisation to know more about the customers especially a customer's online behavior in social media tools like Twitter and Facebook. Best insurance agents are using the power of social media to generate leads and grow the customer base.

Customer rants on social media about a service should prompt insurer to relook into its processes so that a similar value leakage can be avoided in the future. The staggering speed at which digital information is being generated has made IT professionals creative. These professionals struggle to craft solutions that can effectively manage their digital data. New technologies and business tools help store, sort and access information. Cloud computing, mobile applications and social networking have surfaced in response to information age. These technological changes have led to new risk and liability concerns.

Data storage capacity is a concern. SaaS (Software as a Service) and "cloud computing" platforms have evolved from this need for additional capacity. Cloud computing is Internet-based computing, in which software, resources and information are available on the Web and on demand. These services solve storage issues for many enterprises and increase access to information. Other benefits include reductions in hardware, software and infrastructure expenditures. However, these services are vendor-managed; companies must be aware of the risk and evaluate their comfort with allowing third parties to control their sensitive and confidential information. Nevertheless, cloud computing increases data breach concerns, in addition to the possibility that private information will be compromised.

Smart phones have created an expectation that data should be available anytime and anywhere. Application development for mobile devices is growing at a blistering pace. M-commerce is rapidly gaining ground and e-wallets are replacing traditional wallets. But the issue of information security, privacy and integrity of information and transactions being exchanged between two points remains a key concern.

Wireless signals are more easily intercepted. This, combined with the limited memory and computer power of most mobile devices, creates more vulnerability to data theft. The mobility of confidential information creates a significant responsibility for a company to properly secure data.

With the emergence of Web 2.0, communication has become more immediate, interactive and uncontrollable. Texting, emailing, social networks and mobile markets have exploded in popularity. Facebook, which boasted more than 20-million users in April 2007, now claims to have 400-million subscribers. Twitter reports that more than 55-million "tweets" are sent every day. Companies are starting to leverage these new marketing opportunities by replacing traditional advertising with links to social network groups and industry blogs, or maintaining interactive Web sites. As they do so, they must remain aware the content they disseminate, even if posted to their Web sites by others, exposes them to the risk of personal injury (libel, slander) and intellectual property infringement claims.

Governments recognize the need to protect consumers in the event of security and privacy breaches. In the United States, 46 states have enacted laws making notification mandatory for a breach of security. Canada is following suit. Recovery of compromised records typically ranges between $100 and $300 per record. But the greater risk to the company is often the loss of productivity or loss of clients.

Despite policies and practices designed to reduce, control and monitor risk, an essential part of their strategy must address minimizing the financial impact of increased exposure. Every technological solution presents different potential exposures to loss; often the standard professional liability coverage is not enough. This has led to the development of new insurance products that address some critical coverage missing from the average policy traditionally available in the marketplace. These new policies, often termed "cyber-liability policies," address first-and third-party risk associated with e-business, Internet, network and information assets. Some examples of new coverage include:

IT Trends in General Insurance

Policy administration software are available that can satisfy multiple constituents. Underwriters want the systems to enforce underwriting discipline and rules, product teams would like the system to deliver quicker product launches and modifications, sales and marketing teams would like the systems to enable them to reach newer market segments and IT teams expect an open and extendable architecture. Core insurance systems have improved productivity leading to consistently better underwriting decisions. Data is now available for business intelligence.

CRM solutions and Fraud management solutions are now available. Insurers are increasingly investing in rules and rating technologies that allow them to build products quickly, maintain them without need for IT intervention and make incremental changes as necessary.

The product designer tool provides business users with the capability to define rating and underwriting rules using simple user interface and excel like mathematical formulae. The rating and underwriting rules are deployed in small sub programs called as DLLs. These can be used by all the channels for quotation. The staff servicing walk in customers, agents, brokers, customers accessing self-service portals can generate quotes using the same DLL.

Insurers are extending existing systems or bringing in new systems that can automate as many underwriting and claim decisions as possible. Data is scanned and predefined rules are applied. If data passes all the rules, no human intervention is needed. If an exception flag is raised, then it is routed to appropriate authority for review and approval.

Insurance products are distributed through a variety of channels and these channels play a vital role in procuring business and servicing the customer. The key to effective channel management is the seamless movement of information from one part of the insurance supply chain to another. Channels are often the only link the insurance company has with its customers. Given the importance of channels to the insurance business, insurers have started to look at optimizing the entire insurance value chain.

Developments in Information Era that have Influenced the Insurance Sector

Insurers are looking to use technology to gain more information about their customers and potentially offer them low cost insurance solutions. Car insurance now involves telematics which uses a black box to see how safely customers are driving.

In the information era, the market is expected to witness best international practices, product innovation and penetration which will lead to future growth. IRDAI is mooting the idea of insurance service centers across India with the aim of providing prompt service to the policy holder in the most cost efficient manner.

Data analytics will improve product design and distribution – this will expand the reach of insurance. Data must be put to appropriate use. Proper

collection and deployment of data for analysis will help fill existing gaps in key areas like auto, health insurance and disaster management insurance.

IRDAI is proposing to put an insurance self-network platform which could be used by agent to sell and service products on behalf of registered insurers. The insurance self -network platform will be available as a regular Internet website or as a mobile app or both.

Promotion of e-commerce in the insurance space will lower the cost of transacting insurance business and bring higher efficiencies and greater reach. E-commerce is an effective medium to increase insurance penetration and bring financial inclusion in a cost efficient manner. Till now, only insurers and web aggregators were allowed to sell online. Now others in the distribution chain can also sell online.

Motor Insurance Premiums – An Example: Increasing deployment of technology will help drive down motor insurance premiums. Rates drop due to devices like immobilizers, rear view cameras, speed governors and telematics dongles that boost safety and mobile apps that capture driving behavior.

Discount of up to 50% is provided on the motor insurance premium depending on make and model of the vehicle. In India, the motor insurance premium is pegged at 1-1.5% of the sum insured as against 4-4.5% in the UK.

Insurers are moving beyond just looking at the loss experience with a particular make and model and geography to incorporate behavior-based information to analyse risk. They are moving from a protection mode to a preventive mode.

United India Insurance has plans to increase its profits through digital expansion. The company is looking to increase online sales and provide end-to-end offerings in terms of sales, claim settlements and grievance redressal – everything is expected to be facilitated online.

There is a proposal to have an e-insurance account for customers just like a demat account. This account can be opened with an insurance repository. Portfolio of insurance policies of a policyholder is held in an electronic form. There will also be an electronic insurance account number.

IRDAI is expected to form a working group of chief technology officers of insurance companies. The government has developed a scientific tool based on UN model which will use satellite imagery and on-ground assessments to measure direct and indirect images besides the opportunity cost lost due to disasters. This will help the Centre to make a more accurate and scientific assessment of relief and reconstruction packages for disaster-hit regions and not depend on the arbitrary claims made by states. This scientific tool is called as PDNA (Post Disaster Need Assessment) developed by the National Institute of Disaster Management.

Insurers are relying on analytics and digital technology to acquire clients and cut down the time to issue policies and process claims. SBI Life insurance is using technology in the analytics front to provide better offerings to customers. Analytics is also used for predictive marketing. SBI Life has over 1.25 crore customers and the company believes that it can use the digital platform to reach out to more customers and offer them products that can be tweaked to meet their demands.

Private insurers are now looking at development of virtual offices that can provide insurance solutions to clients at their doorsteps. Online aggregators have become additional channel intermediaries. Companies have launched digital insurance wallets to empower customers to make digital transactions. Some private insurers are looking at digital claim settlements in the future. Digitization has made it easier for insurers to indulge in direct selling of insurance policies to customers.

Use of digital tabs for instant issue/ renewal of motor insurance policies is also becoming common. Image based documentation allows the transfer and online verification of

scanned documents that can reduce the processing time for claims. Thus digitization can be used to increase customer satisfaction.

Opportunities Due to Digitization

Many insurers are now entering the digital world to enhance their business prospects. Utah's longest serving insurance providers called Alvin S Anderson launched their Twitter page. The main intention behind this move was to educate businesses about the need for insurance. Twitter blog provides a useful source of information for businesses that want to get insured. The Twitter feed also hopes to disseminate useful information to the individuals so that they realise the importance of insurance.

Twitter account can help to connect with the community and can answer queries that people may have about car, home, life insurance. For example, customers who are unhappy with a health care insurer get updates about alternatives. Introduction of new products and coverage options available become easy on social media platforms.

> United India Insurance has plans to increase its profits through digital expansion. The company is looking to increase online sales and provide end-to-end offerings in terms of sales, claim settlements and grievance redressal – everything is expected to be facilitated online.

In the information age, wealth of information is available to anyone anywhere about almost anything or anybody. Our visibility in the virtual world is bound to get noticed somewhere. Though some people may complain about privacy violation, the truth is that many people post their personal pictures and information on Facebook and this leads to unnecessary intrusion in their personal space by lumpen elements. So, if we own a car and we have never been involved in any sort of an accident then this becomes an incentive for us to demand better rates from motor insurance policy.

Social media is the way the next-generation communicates, entertains, informs and decides what to buy. Leading brands like Apple, Disney, Nike, Google, Delta, Amazon and Coca Cola have already realised that social media is a tool that cannot be ignored if one wants to grow the business.

Insurance as a career option has been on the last of priority list of college graduates and management students. So this leads to inability of the insurance sector to leverage on the creative potential of the younger generation. This leads to underinsurance and retirement plans appear less attractive. Institutions such as III are trying their best to attract more students to pursue courses in insurance. Institutes like III and NIA are also promoting research in insurance and more students should be encouraged to pursue advanced research in insurance. The younger generation being more net savvy can attract the young generation by effective use of social media tools like Twitter, Facebook and Linked In. Digital connections can be converted to tangible leads by directing targeted messages to them.

Concern Areas/ Threats in the Information Era

In the information era, there is heightened risk of cyber and privacy breaches. Insurance sector has to look at how it assesses and rates new liabilities and exposures. Industry has to look at data and tools from the past and ensure that future approaches are refined. Companies are now adding cyber and privacy data breach to their general professional liability policies to protect themselves against these new risks. Cyber risks and evolving data protection laws could really boost cyber insurance policies with data breaches set to become more costly.

Private insurers are attempting to become more customer centric by making claims management an easier process. This is a welcome move. Insurers need to have a robust claims management infrastructure. However, there is a word of caution here. The claims management process must have suitable checks and controls to ensure that no fraudulent claims are made.

In the information era, many private insurers are trying to create the impression that just like fast food, insurance can be ordered online. This is a dangerous trend and can eventually lead to proliferation of fraudulent claims. The basic purpose of insurance is protection against risks and not releasing claims. Online selling unfortunately often projects this image. There are certain underwriting protocols to be followed while issuing new insurance policies and though the processing time for the same can be reduced, the process itself cannot be circumvented.

It also needs to be remembered that software provided by IT companies will come at a cost for the insurers. The software has to be updated and maintained every year. So, data analytics is not something that comes cheap. This must be clearly understood.

Fraudulent Insurance Claims

Organised crime has touched a new high in insurance. Example – fraudulent claims, impersonating other people for claims – this call for tough underwriting norms. The law is getting stringent on claims rejection. So, insurers are using analytics to deal with this.

The General Insurance Council has created a data bank for fraudulent claims. This data bank can be accessed for decision making purpose. Data from life insurers has shown that there is a 20% rise year-on-year in fraudulent claims.

In the general insurance industry, retail, motor and health portfolios are bleeding with high claims ratio of 110% to 150%. Of these, 15-20% claims are fraudulent. Technological advances should make it possible to check the fraud at the application stage itself.

Mushrooming of insurance call centers in India is a cause for concern as these are hotbeds for cyber-crimes. So it is important to come out with standards for data security.

Challenges Owing to Digitization

The World Wide Web has created an interconnectedness that has become somewhat like a double edged sword. While people can stay connected to others 24 x7, this has also allowed individuals to become vulnerable to the malicious intents of others who wish to do them harm. Many Americans have found that their identities have been stolen. Nearly 18 million U.S. residents were affected by identity theft in 2012.

Identity theft was in the form of forging of signature or obtaining access to a social security number. After a financial institution got in touch with them, people realised that their personal data had been compromised.

Police cannot protect people everywhere all the time. People have to be vigilant. They need to be aware about identity theft. There is nothing wrong in adopting a skeptical approach. USA conducts Cyber Security Awareness camps. This has led to the importance of a proper insurance plan in today's information era.

One of the main threats for financial services industry is information. But information also presents the greatest opportunity. The problem lies in use of the information. We listened to music on tape recorders, CD players and MP3 players. Then there was ipod. Now mobile phones can be used to play music. So, in the last few years there has been a phenomenal change in the way we listen to music. Youtube has made movie channels redundant.

> Some of the challenges of cyber insurance coverage must not be overlooked. Pricing of risk is tough because historical data is not available. Insurance can do little about prevention when it comes to cyber security. The insured must know where the relevant data sits and how to protect it. The modalities of insurance cover need to be carefully worked out.

But for the banking sector and insurance sector, the transformation to the digital era has not been so smooth. These sectors are still conservative. The only change that has occurred is use of text messages on smart phone and electronic mails to satisfy customer. The processes have been made faster due to intervention of computer and the convenience with which premiums can be paid through an array of channels. Insurance can now be sold online. However underwriting practices, actuarial experiences and claims processing have much remained the same.

Databases leak information about individuals causing security breaches. Facebook asks for your date of birth and hometown, two pieces of information that most young people include on their pages simply because they want their friends to wish them a happy birthday. In the US, it has become easy to trace someone's social security number.

Technologies must also ensure maintenance of personal privacy. Individuals have a right to be protected against abuse. Young people post all kinds of personal information on social networking sites such as Facebook – including photographs that might compromise them later. Some people feel that there has been a generational shift in attitudes towards privacy.

Noting young people's willingness to post all kinds of personal information on social networking sites such as Facebook—including photographs that might compromise them later—some commentators have wondered if there

has been a generational shift in attitudes towards privacy. In "Say Everything," a February 2007 New York Magazine article, author Emily Nussbaum noted:

The dawn of the information era has created a host of new risk exposures and threats from the use of the internet or e-commerce. It's important to be aware that standard general liability coverage does not protect against the unique risks associated with data breaches or software corruption, so considering separate, additional coverage has never been more important. New crucial legislation makes online liability an important type of coverage or policy for any business who has data on a computer or partakes in online data activity.

The importance of data for a company is at an all-time high. In the current information era, competitive advantage for an insurer is strongly based on data. Hence, the risk associated with losing control of the data is high. Insurance offsets the expenses of a data breach. Many cyber policies, in addition to covering the costs of a data breach also provide counselling and crisis management strategies.

Some of the challenges of cyber insurance coverage must not be overlooked. Pricing of risk is tough because historical data is not available. Insurance can do little about prevention when it comes to cyber security. The insured must know where the relevant data sits and how to protect it. The modalities of insurance cover need to be carefully worked out.

Insurance Agents are Irreplaceable

In the information era, customer is overloaded with information making it difficult for him to take a decision. The insurance company must present the customer with the information that he needs and weed out what is not needed. This will need insurer to train its employees and agents so that they can carry out this task effectively.

Though the insurance experts in West believe that digital connect with customers is akin to having a personal touch, this writer begs to differ. In India, the life insurance agents have been part of the insurance eco system and the industry has benefitted from the good service rendered by many insurance agents. These agents were not tech savvy but they were able to maintain a physical rapport with the customer when they met the latter. No amount of being social media savvy, can substitute for a human being's personal involvement in distributing insurance. But training of insurance agents to be more net savvy is not a bad move either – provided the agents use the digital media for the right purpose. At the end of the day the customer expects service. Insurer and insurance agent must work towards improving the quality of service rendered by them. Social media tools cannot substitute a good service – at best they can only be enablers.

Insurance Penetration in Rural Areas

Advent of private players in insurance has brought about advanced IT systems that can render services over networks. The kiosks can be insurance agents for insurance firms, which in turn can compensate the kiosk operators for online transactions for new business as well as maintaining the old. Mass deployment of information kiosks is crucial for effective use of the Internet-based content and services. To ensure that the information kiosks are economically feasible, the proposition has to be sustainable and viable. This needs a viable revenue model for managing such kiosks.

In the new information era, the kiosks should be designed to become electronic supermarkets that can be information sources and also provide services that can be useful to people living in rural areas. The revenue available through such sources can make a kiosk attractive for prospective investors. Government can support unemployed rural agricultural guides who will have a greater commitment and these youths will act as a more efficient interface between insurance sector and the less educated rural visitors to these kiosks. The objective should be to transform rural info kiosks into 'clicks and mortar' getaway to rural India for 'bricks and mortar' industry.

Summary

Digital technologies provide new opportunities for additional premiums, enhanced customer experience and selection of risks in a better fashion. Governance in insurance organisations improves due to greater transparency. Loss prevention efforts get a boost. In the information era, insurance companies must explore different ways to access and process telemetric data from devices and sensors, streamline real time data from social media and external sources like weather. There are different ways in which data can be interpreted through business intelligence mechanisms.

The information era has also made it important for insurers to find better ways to deal with regulatory pressures. Digital innovation will spur new regulation and insurers have to be prepared to deal with this. Bain did a survey of insurance companies in 2015. Based on the same, global trends in

insurance can be summarized as below:

- Physical channels will be replaced by digital channels. 20-40% of activities in insurance will transition to digital. Pre-purchase, purchase, servicing, renewals, claims handling and management, payments and customer feedback and resolution will become digital first.
- The new insurance customer demands information and service on mobile devices and the web. This needs different application designs. Insurance companies must turn the IT in their user experience departments upside down. Assumptions made by legacy systems are no longer valid as customer expectations in the information era have increased manifold.
- There is no need to dump the legacy systems. Technologies now exist to extend the life of legacy IT assets. Use of in-memory data grid to move and cache back office data for new, innovative, digital applications. Data grids reduce load on existing systems and can save tens of millions of dollars in some cases, at the same time reducing the need to buy additional storage.
- Relationship management will become digital. Modern insurance call centers must have a seamless, real time, 360 degree view of social media engagement, mobile application interaction and geo-awareness from IoT (Internet of Things) sensors. Modernized integration infrastructure with up-to-date web API, cloud-based services, IoT aware connectivity as well as traditional integration infrastructure and data integration is required.
- IoT increases the need for streaming analytics to innovate. Insurance companies are capturing new data from the "Internet of Everything". Insurers must possess capabilities to process massive amounts of streaming information from devices. Dealing with the volume of data itself is a challenge for insurers.
- Driverless cars pose new forms of risk. Risk management involves forecasting risk and also managing and mitigating risk in real-time. If an automated driver feature in car causes an accident, who is at fault? What is the obligation of all insurance companies to gather and analyze massive amounts of streaming forensic data from insured, automated assets in order to decide? How can risk be mitigated in real-time by monitoring streaming data? The digital insurance company must invest in capturing these new forms of data and in data science to analyze it for forensics, patterns and predictive actions to decide how to respond to regulatory pressures.
- Data Scientist used to be synonymous with actuary in the insurance industry. But in the new digital insurance era, data science is being applied to IoT data for forensics, history for predictive analytics, and location awareness for risk mitigation. These are new forms of data science that will rise to the forefront of the modern insurance firm.

> Digitization is a means for the insurance community to reach out to more people. Information technology must move beyond sales to include after sales, customer servicing, accounts, investment management, MIS reporting, claims.

With the proliferation of data, opinions, feedback and reviews on social media sites, blogs, forums, micro-blogging platforms, there would be a major transformation in the way the generated data is consumed. Predictive analytics will enable insurance companies to understand their customers and their behaviors better. This can lead to better offerings which in turn will breed customer loyalty and brand recall.

Way Forward

Lack of information architecture and standardization of insurance data in order to provide for aggregating common information are areas that need attention.

Current customer in the information era is more informed with greater access to information which enables them to compare and contrast with the various players in the industry.

Communication strategies in the information era have to be innovative to secure competitive advantage. Awareness of value of insurance must be made more explicit to the insuring public at large. Information sharing through efficient communication strategies coupled with development of client based product is crucial for competitiveness of insurance companies.

The IT systems have to be agile to be able to bring products to the market with increasing speed and automated processes. We are sitting on humongous amount of data but we are unable to use it in the best possible manner other than for taking decisions based on risk. The regulator and insurance sector must work together to better leverage this data.

Digital innovations act as catalyst for customer revolution providing greater opportunities for customer engagement, insight and experience to meet customer needs more effectively. Digitization is a means for the insurance community to reach out to more people. Information technology must move beyond sales to include after sales, customer servicing, accounts, investment management, MIS reporting, claims.

Information technology leads to reduction in cost, reduced human intervention, increased transparency, increased quality of service and increase the levels of customer satisfaction. There is no escaping this truth.

In a connected world, managing the customer expectations is an arduous task. Technology can be effectively deployed to satisfy customers and bring them under the fold of loyal customers. Risk management tools assume greater importance for businesses and the insurance industry must step in so that they can provide tailor made solutions that meet the customer needs. Use of IT in underwriting and claims processing has still not been institutionalized by insurance companies. This is something that calls for attention.

Effective managing of data and insulating customers from information overload are other challenges that insurers face. This will need insurers to invest in training employees and front line agents to respond better to customer needs. The seamless flow of information from one channel to another has given a big boost to the business development efforts of the insurance community. Insurers have to maintain appropriate checks, balances and controls to deal with fraudulent claims and comply with the regulation mandated. The problem with online selling is that it tries to give an impression that insurance is something that can be easily obtained. Insurance underwriting protocols cannot be diluted as otherwise the percentage of risks turning into claims will increase. Insurers have to tread the fine line of balance between focusing on needs of customers and ensuring that business processes are not compromised to achieve that goal.

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Electronic Insurance Policies in India: Issuance and Administration

The efficiency effect of applying e-commerce technology in insurance would be twofold. First, it would reduce the need for administration and management. Second, direct sales to clients could be used to reduce the cost of commissions paid to intermediaries.

– E-Commerce and Development Report, 2002, UNCTAD

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Abstract

The insurance industry has been benefitted, from time to time, with technological inventions and developments like other industries. Currently, the system of electronic insurance (e-insurance) has been introduced in India by the IRDAI with the objective of having a potent, fair, safe, stable, and successful insurance industry. This system, having multifarious and multifaceted advantages for the insurance companies, policyholders/beneficiaries, insurance industry, and society as a whole, has been thought to revolutionize the traditional system of issuing and servicing insurance policies. Taking into account the current system, the present paper unearths the legal provisions relating to issuance and administration of e-insurance policy in India. Further, it mentions some sensible suggestions for effective management of e-insurance.

Keywords
Electronic insurance, insurance policy, e-insurance account.

Introduction

Today, the development of a country is measured, *inter alia*, in terms of technological capabilities and efficiency and in this respect, the advent of information technology, including computer aided devices, has positively influenced the human activities in every walk of life resulting in the determining factor of the progress of countries, institutions, and individuals. The information technology is thought to be pro-people and pro-development and, in fact, it is not only a matter of an individual rather of public interest, common good, and the necessity of time, intended for all round development of the whole society. The significant developments in the field of information technology have provided an opportunity to remove our historical disabilities and work in interest of our nation building. Recognising the potential of information technology in the field of insurance and to fulfill the growing demands of customers, the Insurance Regulatory and Development Authority of India (IRDAI) has taken varied initiatives including issuing guidelines, regulations etc. Particularly, the Insurance Regulatory and Development Authority of India (Issuance of e-Insurance Policies) Regulations, 2016 have been made by the IRDAI which came into force on 1st October, 2016.

E-Insurance Policy: Concept, Need and Importance

The usefulness of insurance has been fully recognised in every society as a social cooperative device to compensate a person in the hour of need. To subscribe and service an insurance policy, the customer had to approach the office of the insurer or an insurance agent and as an evidence of contract of insurance, the insurance policy, containing the terms and conditions and other details, was issued by the insurer in physical mode only. The risks of loss/damage associated with the physical policy are a well-known fact which necessitated a rethink of alternative mechanisms. The concept of e-insurance, riding on the benefits of Information Technology, has been introduced which is more convenient, safe and beneficial for both the parties-insurer and insured.

The e-insurance policy has been defined in Regulation 2 (vii) of the IRDAI (Issuance of e-Insurance Policies) Regulations, 2016 as under:

- 'E-insurance policy' or 'electronic insurance policy' shall mean a policy document which is an evidence of insurance contract issued by an insurer and digitally signed in accordance with the applicable provisions prescribed by law and issued in an electronic form either directly to the policyholder by the insurer or through the platform of registered insurance repository.

The E-Commerce and Development Report, 2002 mentions as under:

- E-insurance can be broadly defined as the application of Internet and related information technologies to the production and distribution of insurance services. In a narrower sense, it can be defined as the provision of an insurance cover whereby an insurance policy is solicited, offered, negotiated and contracted online.

Thus, it is evident from the above that e-insurance policies are issued by the insurer online. Additionally, the e-insurance policies have the following advantages:

Safe and Convenient- The e-insurance policies are comparatively safe and convenient as these are maintained and stored electronically without any fear of loss/damage to policies and it can be retrieved easily from anywhere and at anytime only by logging on the portal of the respective Insurance Repository. A person may store and maintain his more than one policy in his e-insurance account.

Less Expensive and Time Saving- The e-insurance policies are economic for insurers as well as insured as it reduces the cost of issuing and maintaining insurance policies and the insured does not need to submit KYC (Know Your Customers) details each time a new policy is subscribed. Additionally, the insurers have been expected to offer discounts in the premium rates to the policyholders in issuing e-insurance policies which will result in cheaper insurance products over a period of time. Further, it is relevant to mention here that the personal details like address or contact number may be modified or revised without approaching the office of the insurer speedily and accurately without any hurdle.

Additionally, these policies are environment friendly, will increase efficiency and transparency and provide single point of service, etc.

Entities Involved in e-insurance

In respect of issuance/management of e-insurance policies the following entities have a leading role to play:

IRDAI- The IRDAI, with the mission of protecting the interests of the policyholders and to regulate, promote and ensure orderly growth of the insurance industry, has full control over insurance business in India. With the objective of dematerializing (electronic

form) the insurance policies, the IRDAI has issued guidelines on Insurance Repositories and electronic issuance of insurance policies, the procedure for appointment of Approved Persons in addition to above mentioned regulations etc.

Insurance Repository- The system of insurance repositories, the first of its kind in the world, has been introduced by the IRDAI to provide policyholders the facility of keeping all insurance policies (life, general and health insurance policies) in electronic form. In this system, the policies may be issued and serviced in electronic form from single point. Additionally, the policyholders may change, modify and revise the insurance policy, if required, speedily and accurately in order to bring about efficiency, transparency and cost reduction in the issuance and maintenance of insurance policies.

An 'Insurance Repository' is defined as a company formed and registered under the Companies Act, 2013 or other entity and which has been granted a certificate of registration for maintaining data of insurance policies in electronic form on behalf of insurers. In a true sense, the insurance repositories are service providers who allow the policyholders to open 'e-Insurance Account' free of any charge. In e-Insurance Account, the portfolios of insurance policies of policyholders are held in an electronic form. Earlier, five insurance repositories were licensed by the IRDAI to function as insurance repository but in September, 2015 SHCIL Projects Limited surrendered its license and currently there are currently only four insurance repositories in India as mentioned in Table-1 below:

Table-1: List of Insurance Repositories

License Number	Name and Address of the Insurance Repository	License Valid Upto
1	M/s NSDL Database Management Limited 1st Floor, Times Tower, Kamala Mills Compound, Senapati Bapat Marg, Lower Parel, Mumbai – 400 013. Website: www.nir.ndml.in	31/07/2018
2	M/s Central Insurance Repository Limited, Phiroze Jeejeebhoy Towers, 17th Floor, Dalal Street, Mumbai – 400 001. Telephone: 022-2272 1383 Website: www.cirl.co.in	31/07/2018
3	M/s Karvy Insurance Repository Limited 'Karvy House', 46, Avenue 4, Street No 1, Banjara Hills, Hyderabad – 500 034. Website: www.kinrep.com	31/07/2018
4	M/s CAMS Repository Services Limited, No. 158, Rayala Towers, 1st Floor, Anna Salai, Chennai – 600 002. Telephone: 044 3021 2997 Website: www.camsrepository.com	31/07/2018

Source: *IRDAI Website*

All the insurance repositories have been mandated to maintain insurer wise the following electronic records and documents-

- records of e-insurance accounts with a unique number
- records of list of e-insurance policies issued and records of list of e-insurance policies converted back into physical form
- the date of assignment along with particulars of endorsement in insurance policies issued in electronic form
- a register and an index of policyholders and their nominees / assignees / beneficiaries in the respective e-insurance policies
- record of instructions received from and sent to policyholders and insurers
- history of claim data and record of transactions handled
- such other records as may be specified by the IRDAI from time to time for carrying on the activities as an insurance repository.

Every year, the insurance repositories have to intimate the IRDAI the place where the records, documents and their back up facilities are maintained as on 31st March. Additionally, the insurance repositories before commencing the operations shall put in place measures to safeguard the privacy of the data maintained and adequate systems to prevent manipulation of records and transactions.

Approved Person- An 'approved person' is an entity appointed by an insurance repository as its agent to perform certain assigned tasks in relation to and incidental to the functions of the insurance repository. In simple terms, it is a Point of Sale appointed by the insurance repository to extend the insurance repository services. It is pertinent to mention here that the insurance repository or its Approved Person is not allowed to solicit insurance related activities and services.

Insurance Companies- The insurance companies have to mandatorily utilize the services of the insurance repositories for issuing and maintaining e-insurance policies and they have to enter into service level agreements with one or more insurance repositories for maintaining the electronic insurance policies of their respective policyholders. The contents of the service level agreements should include sections on-

- Scope of services such as Basic, Premium and others
- Role of various parties
- Non-disclosure provisions
- Cost of additional/optional services provided on behalf of insurers
- Inspection/audit of the insurance repository systems by the insurers
- Turn Around Times
- Tenure of the agreement
- Limitation of liability etc.

Policyholder- Every person has been allowed to open only one e-Insurance Account with any insurance repository. To avoid duplication of account by the same policyholders, the insurers and insurance repositories have been mandated to put in place measures in this respect. The e-Insurance Account may be opened by a person directly with insurance repository or through authorised Approved Persons or through insurers.

Operational Framework

Opening of e-Insurance Account- An e-Insurance Account may be opened by a person adopting anyone method as mentioned below-

- visit webpage of any licensed insurance repository, fill up required information, print it and send to office of the respective insurance repository with supporting documents of identity and address or
- visit office of the Approved Person, KYC compliance and verification or
- contact the insurer, specify the insurance repository, KYC compliance and verification.

An e-IA is opened within 7 days from the date of submission of application complete in all respects. To open an e-Insurance Account the existence of an insurance policy is not a prerequisite. If a person has an insurance policy and desires to convert it in e-insurance policy, he may do it after creating an e-Insurance Account but when a person is subscribing to any new insurance policy that fulfills the criteria given in Table-1 in terms of sum assured or premium, having an e-Insurance Account is mandatory. After opening an e-IA, the respective insurance repository provides a welcome kit and helps with the details of how to use the account. At the time of issuing a new e-insurance policy, the insurers would be sending an insurance information sheet containing the basic details of insurance policy.

Electronic Proposal Form- The 'electronic proposal' (e-proposal) means a proposal form for an insurance policy filed in electronic form by the prospect with his electronic signature or be validated by One Time Password. All the insurance companies soliciting insurance business through electronic mode have been mandated to create an e-proposal form similar to the physical proposal form having the provision of capturing information in electronic form for easy processing and servicing. The e-proposal form must contain a provision to capture the e-Insurance Account number to be filled by prospect wherever available. The insurer must make available physical version of e-proposal. When the information is captured in physical form, the insurer shall make necessary arrangements to convert the information furnished by prospects into electronic version. If the prospect has no e-Insurance Account number, the insurer has to facilitate the creation of an e-Insurance Account number through the insurance repository system. The details furnished in e-proposal form by the prospect have to be validated by One Time Password or electronic signature.

Issuance of e-insurance Policies- The insurers have to issue e-insurance policies that fulfill the criteria given in Table-2 in terms of sum assured or premium. Additionally, every insurer shall mandatorily issue e-insurance policies in disaster prone and vulnerable areas as specified by the IRDAI.

Table-2: E-insurance Policy Norms

Line of Business		Sum Insured* (equal to or exceeding) (in ₹)	Single/ Annual Premium* (equal to or exceeding) (in ₹)
Pure term (excluding term with ROP)**		10,00,000/-	10,000/-
Other than Pure term (including term with ROP)**		1,00,000/-	10,000/-
Pension policies		NA	10,000/-
Immediate Annuities (Pension p.a.)		NA	10,000/-
All retail General Insurance policies except Motor		10,00,000/-	5,000/-
Individual Health		5,00,000/-	10,000/-
Motor Retail		All policies	All policies
Mis-cella-neous	Individual Personal Accident & Domestic Travel	10,00,000/-	5,000/-
	Individual Travel Insurance (Overseas)	All Policies	

* Electronic policy shall be issued if either the Sum Insured or Single/Annual Premium criteria is met.
** Micro-insurance policies are exempted

It is evident from Table-2 that in following cases the e-insurance policies have to be mandatorily issued by the insurers-

- All life insurance policies where the single/annual premium is equal or more than ₹ 10,000/- or the sum assured is ₹ 1 lakh (₹ 10 lakh for pure term plans).
- All general insurance (except health, motor and travel insurance) policies having single/annual premium equal or more than ₹ 5,000/- or the sum insured is ₹ 10 lakh or more.
- Individual health policies of sum insured of ₹ 5 lakh and above or single/annual premium of ₹ 5,000/-.
- Personal Accident and Domestic Travel Insurance policies having the single/annual premium or sum insured equal or more than ₹ 5,000/- and ₹ 10 lakh respectively.

Micro-insurance policies are exempted from being offered electronically.

The e-insurance policies may be issued by the insurers either directly to the policyholders or through the registered insurance repositories. When it is issued in electronic form by the insurer directly to the policyholder, it has been mandated to issue it in physical form also, as a replica of the electronic form. But, when the policy is issued through insurance repositories, the issuance of policy in physical form is not required. It is to be noted that the e-insurance policy has to be issued with digital signature.

E-insurance Policy: Current Scenario

The Annual Reports of the IRDAI provide the following data:

Table-3: No. of E-insurance Accounts and Policies Converted

	No. of eIAs	No. of Policies converted into Electronic Mode
2014-2015	7,41,481	3,38,065
2015-2016	8,07,705	4,11,832

Source: *Annual Reports, IRDA.*

It is clear from Table-3 that the numbers of e-Insurance Accounts have increased 8.93% (from 7,41,481 to 8,07,705) within the period of only one year. Following the same trend, there is a 21.82% growth in the conversion of existing policies into electronic mode has been recorded from 3,38,065 to 4,11,832.

Concluding Observations

The e-insurance policies are the result of evolution of technology having the multiple positive advantages for the policyholders/beneficiaries, insurers, insurance industry, and society as a whole. But, this platform has also manifold challenges including regulatory and supervisory issues. Firstly, there is need to redefine the relationships between insurance companies and their agents and brokers, as e-insurance has resulted to some extent, in the role of agents and brokers. Secondly, there is concern for proper protection of policyholders' personal data stored by the insurance repositories having the potential business leak hazard risk. The back-up of the policyholders' personal data should be created regularly and stored under the proper monitoring system of the IRDAI. Thirdly, to achieve the goal of a potent, fair, safe, stable, and successful insurance industry the existing insurance policies also should be converted to e-insurance policies. Fourthly, the current system of 'service level agreements with one or more insurance repositories by insurers' can

be replaced with mandatory system of engaging all the insurance repositories by every insurer for maintaining uniform insurance system. For this purpose, the 'service level agreements' can be between IRDAI and insurance repositories and it is suggested that the insurers be allowed to utilize the services of insurance repositories through IRDAI. It is further suggested that the expenses to be incurred in this respect be equally shared by all the insurers. Special efforts are required to educate and create awareness among the common people regarding advantages of e-insurance policies through electronic and print media.

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Insurance in the Information Era - The Future

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Scholars, Pundits, Management Gurus, Leaders of Industry proclaim that the information era is at its peak and we must align ourselves with it, or otherwise we will vanish. Tomorrow is uncertain and only those few who can learn and adopt themselves with changing environment will survive.

Among all these commotions, one thing remains unanswered : what exactly is this information era and what are changes that it is bringing? Is it beneficial for the insurance industry as a whole, and will it empowers customers or only benefit the companies? At the end of the decade, will we be able to say that the information era gave a new and better face to the insurance industry?

Let us try, in this article, to answer a few of the above questions and try to find out the true intensity of the changes we are facing and will face in the coming future.

Information era is the period of transformation, which is characterized by a shift - from traditional industry dominated by manual processes, thick paper based files, letter or telephone call based transmission of information, long queues, babus who used to feed all the data in registers manually and which required you to wait for months for any information you wanted to have - to an economy which is based on digitalization and computerization.

Today, because of digitalization, manual processes got replaced by software which could do wonders in just a click, thick paper files got replaced by data management tools which can manage universe of information in such a way that any information can be fetched in just few moments, information transmission is now so quick that in few seconds you can send data to any corner of the world using internet; now you don't have to deal with Babus, you don't have to stand in long queues for any information; you just go to the website and all information, all support that you require is available right there.

Insurance industry, with the entry of private players and foreign partners of these private players, absorbed the benefits of all these changes very quickly. Impact of information technology is visible in every area like sales, underwriting, policy servicing, customer handling and claims settlement.

Today the sales persons of insurance companies are equipped with smart phones and tablets which contains details of various products available, benefit illustrators which can illustrate benefits of the plans, many softwares are provided by companies which can provide customized presentations for any client. Not only it is benefitting the intermediaries like agents but customers are also getting benefited by all these changes, today high-tech sales persons of insurance companies are approaching customers with tablet which not only present the plans to them but also capture the information of the customer. customers do not require to submit docs, photographs etc. these high tech sales person can do all this using their tabs. Customers do not need to sign the check, they can do online payments. Govt. is now linking every individual with Aadhar. Once this will be done, customers will no longer need to provide address proof, ID proof etc. Just an Aadhar number will be enough. All these will not only simplify the process but also save the customer from all hectic paper work.

Auto underwriting is another new thing that is going to benefit both the customer and the companies both. Companies are creating software wherein once the information is fed, underwriting can be done on the basis of rules already set. This is shortening the underwriting TAT and also minimizing the errors which may occur due to manual underwriting.

There was an era when customers had to wait for weeks to get any information from insurance industry, now every company has a portal which can provide any information that a customer may need. Due to technological advancement, the insurance industry can sell the ULIP product. Without availability of advanced software, which can enable investment and disinvestment in the market on daily basis; and which can do the cumbersome calculations involved in NAV calculations, unit allotment, fund value etc. the insurance industry could never have thought of selling advanced products like ULIP.

Today companies have provided applications to the customers where a customer can find out various information one may need about his policy, he can request for changes and modifications in the policy through applications only. Customers can even make renewal payments. Companies have provided such applications to intermediaries also where an agent can check all the details of business he has sourced, renewal due dates of the customers, requests raised by customers etc.

There was a period when companies were not aware about the customer base they had. Today, due to technological advancement, companies can manage data of their customer, through data analysis tools they can do profiling of the customers on the basis of their demographics, psychographics, economic conditions etc. Because companies can now interpret the huge data they have, they can know when exactly their existing customer will need the policy next time, they can pitch the policy to the customer exactly at the right time. Due to the CRM software companies are able to provide better services to the customers and able to get new business leads.

All these changes are very beneficial to the regulator also because we have strong systems which can handle the data, supervision of the companies is becoming easier and regulator can analyze the data and take appropriate action on time. Without strong systems, the regulator would not be able to study so many returns so quickly. Product approval TAT, advertising filling and approval timeline that the regulator is maintaining today would not be easily possible without strong support from IT.

Today the regulator has a data base of blacklisted advisors, complaints and grievances shown by customers; a data base of expenses that companies are incurring, the remuneration they are giving; regulators know TATs of claim settlement, advisor recruitment etc. The regulator is using these data bases for exercising strong control over companies.

The best proof that we can get is availability of online products, availability of online brokers etc. Today's customer can visit several sites that are available online where they can compare various products provided by different insurers and then can take an informed decision, they can apply for some online products from the website only and if there is no need of medical he will get the policy at his door step after some days without even visiting the insurer once. This is providing greater transparency to the customer.

> Today high-tech sales persons of insurance companies are approaching customers with tablet which not only present the plans to them but also capture the information of the customer. customers do not require to submit docs, photographs etc. these high tech sales person can do all this using their tabs.

What More???

Although we have travelled a great distance, our journey has not ended yet. Insurance industry is yet to realize the actual benefit of information era. Think of an ideal situation:

A customer goes to a website where he feeds his Aadhar no. **(Task 1)** all his demographic, psychographics, economic conditions (As Aadhar will be linked to bank accounts, utility providers, payments applications, schools registers, municipal registers etc) will be retrieved including digital signature. Based on the information retrieved, on the basis of the need that he may have, he will be offered all the products that are available with various insurers; he just have to click on the product. **(Task 2)** he like to buy; once he clicks on the product, all the information that was retrieved will be sent to the concerned insurer and payment will be deducted from the bank account of the customer (Obviously he has to provide ID Password etc). This information will then go to the underwriting software of the insurer which will do financial and non-medical underwriting. If the system finds out that there is a need of Medical examination, the data will be sent to TPO's software which will find out medical examiners available near the customer's location, with a request sent to the medical examiner's software, which will then find out date available and these dates will pop up on the Customer's window. The customer has to just select the suitable time. **(Task 3)** and sign off. The Medical examiner will send someone to collect the sample, digital medical report will be sent through medical examiner's software to TPO to Insurer and medical underwriting will be done on the basis of this report and final underwriting decision will be done and customer will get E-copy if the policy within a week on his system. Subsequent renewals will be automatically deducted from his bank account. What is more, once the insurer's system finds that the customer's Aadhar number has got registered at some hospital or in the municipality office for death intimation, the insurer will automatically process the death claim (similarly other claims) and the amount will be credited to the nominees account.

Well, that was an ideal picture, but implementation of all this is not an easy task. First of all, there are a large number of security measures that insurers have to set in place; there are many changes and automations that need to be made in independent agencies like TPO etc. Govt. has to link Aadhar (or any such UID) with every possible service and Govt. has to make necessary arrangements to share the details with corporates without hampering the interest of individuals. Secondly, in a country like India, where many people still don't know how to utilize all these technical platforms, tradition systems of insurance will continue to play a major role and insurers have to make necessary automation in their backend processes only.

So back to our original question, I guess the information era is beneficial to the industry as a whole, it is advantageous for companies as well as customers, since it is giving strong tools to regulator hence it will ultimately benefit the customers only. Transparency and convenience is another gift of the information era. If these changes are grasped with precautions and full awareness of the implications, than yes we can see a new and better face of insurance industry towards the end of this decade.

Let's hope for the best.

Inventing the Future of Insurance

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In a world that is struggling to balance itself due to the inertia of rapid change, one can only wonder when a marvel of today turns into an artifact of the future. It is predicted that many of the industries, the jobs and businesses that run our today will become obsolete in the near future and make way for industries, jobs and businesses that have not yet been thought of.

is this really a surprise? The answer is no! One thing human history has taught us is that *change is the only constant.* The sooner businesses embrace and accept it, the better the chances they have at staying relevant in the future. Insurance is one such sector that has been showing rapid growth (and change) in the emerging markets. It is predicted that by 2025 more than 25% growth of global insurance premium will come from emerging markets.

The challenge therein lies in not only satisfying the demand but also figuring out how to cope with the change in the social attitude of the customer brought about by the advancement of technology.

Insurance, in India, is still at a nascent stage and has only begun its attempt at grasping technology. Insurers have recently realized the benefits of marrying technology with insurance and there is a whole lot of innovation happening in different industries that are yet to be introduced in insurance. Four of the major technological innovations that will decide the success or failure of an insurer in the future is IOT, Blockchain, Big Data and Advanced Analytics.

Let us have a look at each of them in detail.

Internet of Things (IOT)

One of the main innovations (if not the main) of our recent history has been *the internet.* It has empowered us to do things, which we could have only dreamt of two decades ago. Now, thanks to the Internet, we can transfer money anywhere in the world, apply to jobs, book tickets, explore a sea of data with only a touch of the button. Though the internet has given us amazing abilities, our future holds far greater promise. Imagine a world where all our physical devices can work in tandem and we can remotely control our physical possessions from a different city! IOT devices are data creators, they create data which can be used for analysis, blockchain technology, etc. When devices interact we get a unique set of data and information. Imagine your IOT enabled phone is able to use information of your ticket bookings, number of co travelers and their relation to you and enables the travel insurer to suggest suitable travel insurance products to you via SMS on your mobile phone.

For more details on *Internet of Things (IOT)* visit the link below:

https://youtu.be/QSIPNhOiMoE

Blockchain Technology

Blockchain is a technology that will define the way businesses are conducted in the future. It is a system created by a person (or group of persons) by the name of *Satoshi Nakamoto.* What it does is, it removes the dependency on a third party in a transaction. At the same time every transaction is recorded chronologically and available to everyone in the chain thus reducing fraud and increasing transparency and validity of the transaction. The term transaction here, applies to any transfer of value between A and B. Blockchain Technology will give the insurer an accurate measurement of risk, eliminate fraudulent claims, improve quality of customers, increase renewals and persistency.

For more details on *Blockchain Technology* visit the link below:

https://youtu.be/r43LhSUUGTQ

Big Data

In our current day, we are able to gather more and more data without understanding how to make use of it. Big data refers to huge data sets that are so large and complex that *traditional data processing tools are inadequate* to make sense of them. Though most organizations in the insurance sector in India do not have the capabilities (yet) to make use of this Big Data, they are sitting on top of a casket of gold that they do not yet have a key to open. Big data is the treasure of knowledge an insurer can bank upon to arrive at suitable products, risk models and customer segments amongst numerous other attributes.

For more details on *Big Data* visit the link below:

https://youtu.be/TzxmjbL-i4Y

Advanced Analytics

The best way to predict the future is to create it – Peter Drucker / Abraham Lincoln

To predict the direction of the business and make sense of it, analyzing data is of utmost importance. It can transform how insurers do business. Actuarial science has been at the forefront of predicting risk in the insurance industry and though they continue to be drivers of profit for the insurer, advanced analytics in insurance delve far beyond the boundaries of traditional risk prediction and actuarial science. An insurer who invests well in advanced analytics today will be at the cusp revolutionizing and leading the insurance industry into the future.

For more details on *Advanced Analytics* visit the link below:

https://youtu.be/8inV54Gq1Ao

Now let us imagine life in *this future* that we have been constantly discussing.

What future can a curious mixture of all the four bring about ?

- Based on the increase in the number of valuable appliances in your home, you will be notified of the increased sum assured, being offered by the home insurance company at a reduced premium.
- Your health-tracking wristband will share your exercise routines with your life insurer and notify you of the premium rebate the insurer is offering in return for increased exercise.
- Your driving habits, average speed, no. of passengers in your vehicle will help determine your car insurance premium.
- From the insurer's perspective, you will have more recent and ready data that you can analyze and help serve your customers better. At the same time, the availability of Big Data and Blockchain eliminates your risks and increases your profits.

These situations do seem like wishful thinking at the moment, but it might not be long before we start living in a world that we can only barely imagine today!

Insurance and Computer Mediated Technologies

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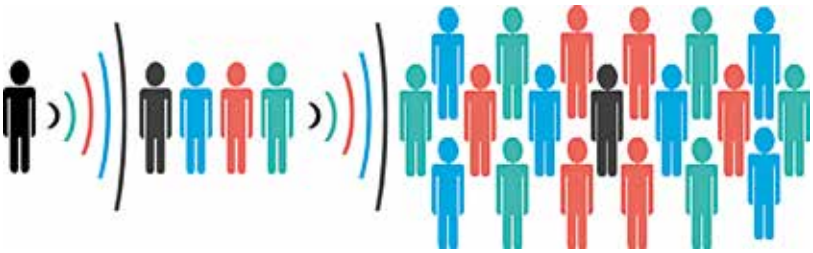
Abstract

With the rapid of growth of technology, social media is ubiquitous in a person's daily life. Insurance covers very emotional events in a person's life. Social media is a powerful tool to create these customer connections and to engage with consumers on a more personal level. When done correctly, social media can establish your brand's reputation as being customer focused, reputable, and trustworthy – all important factors for consumers when deciding which competitor will win their policy. Social media presence is considered crucial in today's day and age. Since insurance has something to do with the costumer's personal engagement, it is vital that insurers start using computer mediated technologies to engage rapidly with the insured. This transformation of insurance industry from being transactional to a more engaging one would definitely be helpful in accumulating consumers as well as hearing grievances and constantly keeping a check on what has to be done to keep the insurance business growing.

Keywords
Insurance industry, social media presence, customer engagement.

Engaging Costumers Through Social Media



To understand the need for social analytics, we need to understand the social transformation journey of an enterprise. Significant business potential linked to social media has been the catalyst for extensive experimentation and some notable implementations by leading insurers. However, social transformation in the insurance sector is at a nascent stage. Enterprises in this sector predominantly use social media to improve brand awareness and presence, using them in some cases to address specific concerns before they go viral.

Insurance is regarded widely as a product that requires, as it is, an expense. Consumers generally obtain information about insurance policies through advertisements, salespeople, family, friends, neighbors and acquaintances. They tend to perceive very little difference among brands of insurance available in the market. However, most buyers today have access to a more trusted experiential source of information in the form of social networking sites. Here, buyers share their brand experience, which is then accessible to a larger audience.

In the traditional contact-centered world, customers are routed to agents on the basis of their perceived business value, purchase history and status. Online social networks provide a larger platform to socialize and exchange information and opinions. This renders the traditional method of market segmentation almost meaningless. Social analytics integrate, analyze and enable enterprises to act on intelligence that is gathered from online conversations occurring across professional and consumer-generated media sites. This helps and enables enterprises to attribute online conversations to specific parts of their business. Enterprises can extract important insights, sentiments, hidden patterns, trends and unknown correlations from customer-centric conversations and proactively act upon them to drive business outcomes.

Consumers are increasingly turning to social channels for customer service. Social in this regard is increasingly playing a key role in servicing customers in the insurance industry. Consumers expect service when and where they want it and through the channels they prefer. Sharing informative content on social media to better educate consumers can go a long way in policy retention and gaining word of mouth referrals. Consumers are looking for insurers to not only sell them a policy, but as experts whom they can trust to protect their most valuable possessions.

Analytics in Social Media

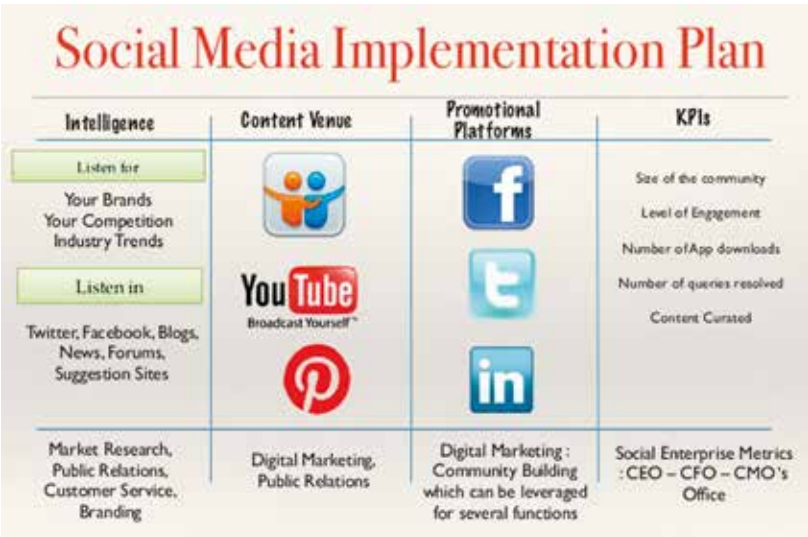
Unstructured data can be used to generate intelligence insights for the brand. Insurers can assess performance of their brands. A customer's social

> Sharing informative content on social media to better educate consumers can go a long way in policy retention and gaining word of mouth referrals. Consumers are looking for insurers to not only sell them a policy, but as experts whom they can trust to protect their most valuable possessions.

profile data can help identify fraudulent claims. Data from social platforms can be fed into a fraud detection engine. This will lead to collation and integration of structured and unstructured data. Predictive models that look at the risk exposure during the life of a policy will become a handy tool in the future. Insurers have to deal with the information overload and filtering out the noise becomes important, more so when data is collected from different sources. Regulatory and compliance functions can help in the dissemination of latest information that can help the underwriting or claims department. This drives home the point, that internal alignment within an organization is crucial for the success of digital marketing efforts. The collective wisdom of employees, agents, actuaries and surveyors can be exploited to serve the needs of the customer better.

Social listening is the essence, especially when one is monitoring social media. It even plays a role in public safety. Often enterprises fail to read the signals from social media, resulting in huge reputation issues. Social media analysis gives us key insights about: Positive or negative sentiments around the brand, Loyal customers, Customer complaints, Competitor analysis.

Business analysis predominantly, social media provides insights on consumer behavior, informing us of their likes, dislikes, problems, concerns and peer influences. Investing in this customer data and analyzing consumer behavior not only helps enterprises improve their communication and targeting, but also their profits.



Conclusion

Insurers are reluctant in adopting social business models because they fear regulatory, compliance and legal implications. But policy guidelines for social media can be formulated so that risks can be mitigated. The social strategy must be closely aligned with the overall business objectives. If insurers have the right strategy, then with the right choice of partners and products, insurers can redesign their communication ecosystem and build stronger relationships with customers to sustain in the long run.

Social analytics and big data can deliver a concoction of benefits in the long run by generating insights to business intelligence. This paves the way for expansion of the insurance business.

Social media considerations also should play a significant role in the insurance enterprises' overall business strategy. They need to be a key part of the decisions that guide tactical directions and operations. Firstly, goals ought to be set and enterprise-wide guidelines for social media should be established. Insurers should be motivated to develop a plan for how social media can work for them and how they can best manage it. The strategic plan should be guided by a comprehensive set of capabilities to analyze and predict social media activity.

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Sustainability of Insurance Business in Information Era

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Abstract

Information is the key determinant in the success of the insurance business. How that information can be reached, disseminated and analyzed for the success of the business is a key question, which is driving insurance business within different geographies. Reaching customer demands with a basket of e-products, services and customized solutions is essential to compete in the yet so unexplored insurance market. An attempt has been made here to meet and explore the avenues, practical aspects and future trends of insurance business structure, given the ever growing importance of the information technology role that would be vital for the growth of insurance market. It has been argued that those organizations that recognize the power of customers and can meet their demands will move towards sustainability. The need for coping up with the ever increasing consumer demands, with tools that can meet that demands with utmost security, ease and cost efficiencies has been emphasized.

Keywords

Interactive Voice Response System, Customer Relationship Management, NAV, Licensing, Artificial Intelligence, Underwriting.

Introduction

Information technology has impacted all walks of life including insurance business. Insurance business has transformed entirely from an agent driven market to consumer driven preferences. The role of information technology is pivotal in sustaining insurance business. In today's information era, the customer and prospective client is well informed about the product, price and services.

Information Technology plays an important role in Insurance discipline via its key components like:

1. Customer Service Management or Customer Relationship Management
2. Electronic Marketing & Electronic Sales
3. Business Intelligence

1. CRM

Customer is God in insurance business and keeping that in mind a comprehensive customer service programme has to be a topmost priority for the insurers. Products should be designed in a way so that it can address customer needs and requirements holistically - from the very beginning, at the point when the customer is a prospect, to the point when actual purchase is made and then to endorsements and post sales services. Overall customer service objective can be achieved by multiple IT led solutions like:

A. IVR (Interactive Voice Response System)

Interactive Voice Response System has gained paramount importance in recent times. IVR has made the role of agent redundant as far as making premium payments are concerned.

Now, customers, especially urban policy holders, rely heavily on IVR systems or voice response units available with insurers' call centers. An IVR is an automated caller system and can extend tailor made customer services in virtually no time. An IVR system provides pre recorded voice responses for different situations, access to secured and relevant data, key pad input logics and voice recording feature for feedback and improvement in services. An IVR enables calls to be transferred to a customer service representative for further investigation of the caller's data.

CLI or caller line identification data technology enables insurance companies to authenticate customer information and if required additional information like policy number, date of birth, communication address details can be asked for. Large insurance companies, to reduce the caller waiting time, uses Voice Activated Dialing system to automate general enquiries to Private Automatic Branch Xchange (PABX).

Benefits of IVR

I. The Customer contacts the system to retrieve information on policy account values, account balances, provisions of policy, payment due date and amount.

II. Customers can learn about the policy features, terms & conditions and can request changes.

III. Customer can do investment inquiries about the existing funds, balances in the funds and transfer the fund from one indexed fund to another. NAV and rates inquiries is possible.

IV. Customer can locate nearest office and agent by providing inputs like pin code and mobile number. Customer has the option to connect to respective sales professional and agents.

V. Customer can provide claim intimation, can enquire for claim related documents and get all the updates and status for the claim filed.

VI. Customers can make their insurance premium payment via the following ways:

- Payment through National Electronic Fund Transfer (NEFT)
- Electronic Clearing Services (ECS)
- Standing Instruction
- Direct Debit

Fig 1: Source: https://www.openmarket.com/blog/mobile-messaging-and-its-place-in-the-financial- services-industry/

- Payment through credit card
- Payment through debit card
- Online Payment

B. Mobile Text Messaging

In the age of tremendous growth in smart phone usage, SMS technology in particular is now considered a viable and reliable tool for customer servicing. Some of the statistics uncovered in an IDC Info Brief informs that:-

I. A hefty 80 percent of all financial services companies are currently using or have planned to use SMS services to interact with their customers.

II. 83 percent of financial service organizations believe mobile messaging has a considerable impact and major impact on their company's brand awareness.

III. Nearly 9 out of 10 financial service organizations feels mobile messaging has a significant impact on overall customer service.

Benefits of SMS

I. **Enhanced Customer Experience:** Customers now a days are too occupied and busy. This means they have literally no time for calling and engaging with their agents. They can text messages on company provided numbers and get prompt responses. This can save the customer's valuable time and safe authentication provides a secured way to process request and trasactions. Customers respond well to SMS as it is simple to use, easy to understand and accessible from anywhere and everywhere. SMS eliminates the need to log in into an account, making a phone call and waiting on hold.

II. **Real Time Alerts:** SMS allows insurance companies to disseminate key information's and timely alerts to customers. That can be of payment, transfer, withdrawal, address change information that needs to be quickly dealt with. Password set alerts of customer login on web-application and mobile applications are sent through SMS.

III. **Communication with Employees and Agents:** Insurance industry is considerably using one way SMS technology in financial services industry.SMS is an effective way of communicating with the service agents and employees of the company. SMS technology is used by IT, HR and marketing departments are using mobile as a tool for sending company announcements, providing system updates, sending account authentication and password reset information.

Capacity of the internet to reach customer and its vast and immense potential to outclass traditional methods of marketing has brought about a revolution in marketing and has increased sales significantly. Internet allows the information to be readily available and provides a convenient way to reach customers with an array of products and services in no time.

2. E-marketing in Insurance

Role of electronic marketing and e-sales has increased many fold in the insurance market.

Establishment of websites through internet has enabled insurance companies to launch new marketing and distribution channels. Capacity of the internet to reach customer and its vast and immense potential to outclass traditional methods of marketing has brought about a revolution in marketing and has increased sales significantly. Internet allows the information to be readily available and provides a convenient way to reach customers with an array of products and services in no time.

Benefits of e-marketing

I. **Target Segment:** Right message to right people and at the right time is the most important benefit of e marketing. It saves a lot of time by identifying the segment of customers and then reaching them by geographic location, age, income, class, gender etc.

II. **Data Availability:** Data collection and manipulation is essential for improving insurance business standards. It is comparatively far easy to prepare reports on emails and share with larger groups.

III. **Low Costing:** Marketing and advertisement cost in insurance business is huge and a lot of investment is required. Insurance products are intangible and it is not easy to sell these products to customers. e-Marketing involves less upfront cost and can save heavy expenditures and customers enjoy competitive pricing.

IV. **Wide Scope:** Scope of e-marketing is wide, a single mail can reach thousands of customers at a time and save lots of time. It is quite an easy job to prepare a group of customers and they can be reached by common and single email.

V. **Customer Engagement:** The very objective of building a sound relationship with the customer is quite possible with internet. Immediate reactions can be seen by referring to emails. It allows the insurance companies to reach customer fast and educate them about market news, new product launch, security checklists and tips and ideas for their insurance needs.

VI. **Direct Communication:** e marketing, being the direct approach, is more effective and efficient then the other conventional sales promotion tools. It facilitates direct, one to one and transparent communication with customers.

Challenges of e-marketing

I. **Underwriting Challenge:** Due to absence of face to face interaction of a sales representative or agent with the customer, many insurance products cannot be made available to them. There is lack of medical records and other information and inadequacy of such records impair the underwriting ability to assess risk and determine eligibility fo insurance without actual contact.

II. **Compliance Issues:** Whether internet based sales of products and services is compliant is one of the biggest challenges with the insurer. Internet penetration is global and accessible from any point in the world and there may be locations where these products and offerings are not compliant according to that geography.

III. **State and Federal Laws:** Advertisement of the insurance products may be in the violations of the state laws and without any authority. Rapid growth in insurance industry via websites and internet has raised valid concerns regarding compliance with state and federal laws.

IV. **Producers Licensing:** Producers may require to be licensed to sell the products by insurance regulators in some areas and e-sales may not be allowed. Producers need to complete mandatory education and procured license to operate in these regions. It will increase the cost of licensing and thus it can limit the e marketing access in these regions.

V. **Customer Resistance to e sales:** Customers may not be interested to purchase online as they may not trust e purchase and resist going for such products. There can be privacy issues with sharing of personal data of the customer and customer may feel reluctant to purchase such products.

VI. **Internet Connectivity:** There can be issues like system breakdowns, internet connection loss, speed of website and its performance, spam or unsolicited email and other privacy and security issues which compel customers not to purchase electronically.

3. Business Intelligence and Data Security

In today's competitive world, in order to increase efficiency and profitability of the insurance

business, it is critical for the insurer to take optimal decisions with appropriate data. Industry and business environment is so unpredictable and business intelligence comes handy in predicting the variations on the business caused by multiple factors. Some of the key components of business intelligence are:

I. **Robotics:** Robotics is a natural fit for the insurers and other financial services because there are numerous repetitive tasks that these companies perform. Shifting these tasks away from humans to machines can bring significant efficiencies, it will enable insurers to comply with stricter regulatory demands for data quality, auditability, security and operational excellence. Organisations that incorporate insurance robotic process automation can expect significant improvement in the quality of work due to elimination of human errors. Robotic Process Automation initiatives are designed to replace the clerical staff that spends an inordinate amount of time handling and completing the bulk, repetitive and rules based task which can be performed by robotics much faster and with more accuracy than humans.

II. Data Governance: Traditional & Conventional data management practices are no longer sufficient. Insurers need to attain high level of data governance. It requires fool proof and comprehensive strategy to put in place a viable and effective system, processes, rules that ensure how data is used throughout the organization. Data governance enables to be used more efficiently by quickly converting huge data into effective business insights for the benefit of the managers and other employees of the insurance company.

Chart 3:

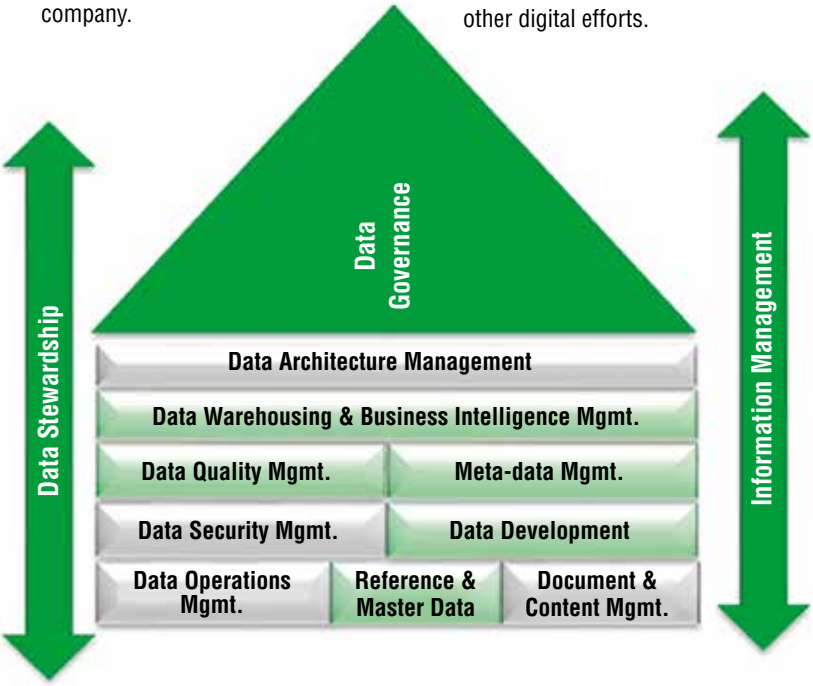

Chart 2: Source: *http://insuranceblog.accenture.com/tag/robotics*

III. Artificial Intelligence: Artificial intelligence is gaining ground and is a natural setting to take its roots. Insurance industry is set to move to an even more comprehensive generation of artificial intelligence (AI).According to the Accenture report, three quarters of insurance executives believe that their own company will be completely transformed by AI within next three years. The report is based on the insights of a technology advisory board, interviews with industry technologists and a survey of more than 550 insurance executives across 31 countries. The insurance companies will be competing with tech companies, universities and other segments for rare and valuable talent to pursue AI initiatives and other digital efforts.

IV. Fraud Detection & Data Security: Fraud detection requires a set of tools that can analyze the data across multiple lines of business. These analytical tools are useful in accessing claims data to spot trends and suspicious behavior. Social network analysis helps insurance provider detect and prevent organized claims fraud. The use of advanced data mining and data analytics techniques to improve decision making has already taken root in general insurance.

Conclusion

Role of Information Technology in today's era where information is key is simply inevitable for the insurance sector. An array of tailor made insurance business solutions is what client and customer are looking for at their doorstep. Internet has enabled the insurance company to have well designed packages to reach customer. Electronic Marketing and Sales has facilitated the industry to reach their prospects with utmost speed and pace at lower cost. With the advancement of technology, challenges in the form of data security and personal information are raising big questions. Recent attacks like wannacry ransomeware are the major roadblocks' for development of global insurance business. Sustaining business pressures, meeting customer expectations and countering data security threats will be the major challenges among insurers in the years to come.

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Why Information is Essential for Business

We live in the information era. Digital revolution has changed the way business is conducted all over the world. Industrial revolution changed the fortunes of many countries. Digital revolution has started changing the fortunes of the countries again. New era is based on the power of communication. Information age enables the people to share new ideas, concepts, and opportunities very quickly. This age is changing the world very fast. Unless we keep ourselves abreast of changing scenario, we shall not be able to live properly. The businesses which are able to adapt to the new changes, are able to work more profitably, retain their customers and acquire new customers from the market.

How data and information can help the businesses? Information era helps the business to understand the market more quickly and accurately and enables them to make right forecasts about the future trends. Information Technology has made great strides in the recent days. It also enables the businesses to understand their customers more intimately and offer them personalised products and services. After all, this is what the customers look for from the businesses.

In 19th and 20th centuries, industrialization happened in countries rich in money. India was a low middle income country and that is why industrial development did not occur the way it occurred in Europe and US. In 21st century, growth of the economies is going to happen to that country which is informational in nature. The societies are developing on the basis of knowledge. The businesses which have information and also use that properly are quite different from the ones that work out of past experience and assumptions. A plethora of communication tools are available in the society. The businesses that use them properly will be winners and the businesses that continue to work from ignorance, will see their profitability, market share and reputation dwindle continuously.

Business has become more information intensive than labour or capital intensive. In fact, more businesses are now coming up which are information intensive. Mark Zuckerberg launched his Facebook movement with the help of a few friends only and with very little capital. But, in no time the company became successful on a very large scale.

Businesses can now have their presence worldwide without having to set up brick and mortar offices in the countries of operation. Movement of big capital has become easy for the companies. Now, even a small company can start competing with the much bigger ones very quickly. That can be real problem for the established companies. If they can not change mode of operation quickly, they can not sustain market share and profitability. Many tech start-ups have changed the complexion of retail marketing in the world. E-commerce is helping people to buy products at cheaper price and also get personalised special offers.

India is fast becoming information rich country. Since, a large proportion of the country's GDP comes from the services sector (55%), there is huge amount of data in our country on customer behaviour. Every industry can make use of the data profitably as the market in indeed very large. In fact, information era is slowly changing the model of economic growth. From manufacturing sector led growth, the major economies are experiencing service sector led growth. India has quality tech talent who are working admirably across the world. Indian businesses have to make better use of this now and take the economy forward. Service industries are going to be the growth engines of the economy. The green shoots of service industry led economic growth is already visible in the economy.

Why Insurance Industry can not Prosper Without Data and Information

Insurance industry is a data hungry industry. It always needs a lot of data to arrive at right decisions. It needs correct and up to date mortality data to arrive at right premiums. Of course, it needs to make fairly correct assumptions about future expenses and investment earnings, too. They also need accurate morbidity data to arrive at health insurance premiums. The insurers need data on road traffic accidents, to arrive at correct third party motor insurance premium. Since, insurance works on age-old principle of law of large numbers, a large volume of correct data is required, to predict the future accurately.

Even twenty years ago, it was believed that insurance had to be sold to the people by the representatives of the insurance companies. The emphasis was on pushing products for sale. So, the insurers tried to launch products which were easy to sell to a large number of people. The insurance intermediaries developed their own strategies to sell products and provide after sales services. The insurers encouraged the agents to become family members of the insured. The insured and his/her family members developed deep trust in the intermediary and continued to purchase whatever the intermediary suggested, in good faith.

While people still consider agents as trustworthy friends in our country, they do not have to depend now on agents only for information on insurance products and services. Today's customers are profoundly net savvy. Not just the Gen Y, even the older generations have developed a habit of visiting websites of service providers to acquire more information about products and services. How can insurance industry be an exception? After the opening up of insurance sector, all insurance companies have launched similar products in the market. It would be a natural curiosity of the people to study the product features of the insurers and the price of the products, before making the actual purchase. The websites of the insurers are extremely user friendly to give all this information very quickly. Web aggregators compare the prices of the insurers and help the customers buy products. The regulator is there to give all protection to the customers against any malpractices of the insurers and their intermediaries. IRDAI, in their website, help people to understand insurance terms and features of insurance products. Social media enables the customer to compare the service qualities of the insurers. Customers today have been empowered by digital media to take right decisions.

The focus of the insurers, therefore, has to shift towards "customers" from "products". This shift is possible only through information technology. The market is huge, customer base is also pretty large for all the insurers. The customers do not belong to any homogeneous segment.

Information technology can help insurers to understand diverse market segments, their needs and preferences and also their grievances against the insurers, if any. Customers have to be engaged on a continuous basis. The job of engaging the customers can not be totally delegated to the intermediaries. New age customers want interactions directly with the insurers. Since customers are crores and crores in numbers, it is not humanly possible to engage them through employees.

Higher level of technology like Artificial Intelligence (AI) has to be used to understand and retain the customers. Very few insurers know why the 61-month industry persistency ratio in life segment is only around 28%. They have to clearly know why the customers are surrendering their policies or keeping them in lapsed condition for years. Agents are not always in touch with the customers as a large number of agents quit the profession very soon.

Insurance environment is in a volatile state now. There are recurrent changes in process models. Product designs are being changed at regular intervals. Many of these changes are happening because of regulatory changes brought by IRDAI. If insurers have to maintain competitive edge and comply with IRDAI's instructions, they have to build a strong IT infrastructure. Not just that, web based Information Technology can also help the insurers in making more need-based selling, analysis of business performance and taking quick decisions.

IT oriented companies can build their customer base very fast. They can generate a lot of leads through their website and social media page. If they can manage to get a very good rating in social media, they can get customers in droves. Customers today buy products on the basis of favourable peer level reviews. Earlier, people used to buy life insurance on the advice of their parents and senior guardians. Now, customers pay more importance to the opinions of friends, colleagues and business associates. The best way to generate brand image is the social media. Insurers can also generate very favourable image if they can provide robo-advices (advices generated by robots) to the people round the clock. Insurers in other markets of the world have been immensely benefitted by engaging the customers through highly intelligent robots capable of understanding the needs of the customers.

> After the opening up of insurance sector, all insurance companies have launched similar products in the market. It would be a natural curiosity of the people to study the product features of the insurers and the price of the products, before making the actual purchase.The websites of the insurers are extremely user friendly to give all this information very quickly.

Insurance industry all over the world is embracing digital technology. They are using technology not just to replace manual work by technology based work, but also using it to understand the customers better and serve them better. Insurers are no longer pushing products. They are developing products with the help of customers' feedbacks and experiences. Distribution channels are getting developed, keeping in mind the customer choices. Even sales process is getting automated by insurers there. Indian insurers have to adapt to the new rules of the game if they want to sustain their growth in future.

How Insurers are Using Information

It is now clear to everyone that information technology has to be extensively used by the insurers if the industry wants to serve the customers properly and grow profitably. Let us see how the insurers are using the digital technology in various functions like sales process management, persistency management, Claims settlement and customer engagement.

LIC, the market leader has taken various digital initiatives in recent times. The insurer has launched technology enabled alternate premium payment channels across the country. Some of these are payment through customer portal, premium points (being the offices of designated agents), Life Offices (being offices of high performing Development Officers) and Debit Cards (in select branches). e-Services have also been launched for the customers to get various self-services online quite easily. The result is that the customers no longer have to visit the offices of the insurer or seek the assistance of agents, to get services from the insurer.

The insurer is ready to launch a few Aadhaar based services. e-KYC using Aadhaar (OTP based), demographic authentication and e-signature on a document are a few of them. Online PAN verification will also be in place. Through BHIM and UPI Apps, the insurer is going to help customers repay loan and interest. The pensioners will be able to submit Jeevan Praman Certificate online using digital pads. They will not have to visit the insurer's office to prove their existence. EDMS (Enterprise Document Management System) project of LIC is going to help the customers to get any kind of service anywhere in the country very soon. EDMS has already made many of the functions paperless for the organization.

LIC is going to launch a sales App which will help the sales personnel to sell right products to the customers. This app is sure to answer all the possible queries of the customers. LIC's another App, LICMobile has already become very popular among the customers. It helps people to know the details of all products and services of the insurer in a very user friendly way.

HDFC Life is getting a lot of business through web aggregators. This again is a better way to get prospects because the prospects show interest to buy products of a company only after comparing prices and product features shown in details in the websites of web aggregators.

Again, the company's Technology Enabled Business Transformation (TEBT) is giving the customers a lot of confidence in the strength of the company. TEBT is a transformational tool designed to integrate sales, marketing and servicing activities of HDFC Life. Thomson Thomas, the Vice President (IT) and COO has received Digital Transformation award for installing this highly innovative software that enables the company to engage better with the marketing team as also the customers.

SBI Life has launched a paperless online sales process system called "Connect Life". This is giving the customers a unique experience of quick completion of the sales process without having to sign a lot of papers. Under this initiative, the customers can sign digitally, take photograph and upload that instantly. Even for offline underwriting, they are using a "Dual Screen Technology" which is enabling them to do work faster. SBI Life has also launched an Automated Underwriting System under which all proposals for sum assured upto ₹ 5 lakh (except some high risk bearing ones) are automatically underwritten. Such measures engage the new age customers more and also make them impressed about the industry. Therefore, the customers begin their journey with a lot of satisfaction.

> SBI Life's DigiLife is an innovation Lab which scans the comments and feedbacks given by the customers in social media and then tries to improve its level of services accordingly. In fact, all insurers have understood that the social media is where their customers are available for a good part of the day's time.

Bajaj Allianz has developed a software package called INSTAB which their agents carry in their tablets. This helps the agents to sell products with the satisfaction of the customers. INSTAB is an android based application package that the insurance intermediaries carry in their mobile phones. In fact, the mobile phones of the intermediaries have been turned into an one-stop "Mobile Office" with the help of this package. Capturing of customer details and KYC documents on a digital platform has increased the speed and accuracy of both the sales and operational jobs. This has enhanced the buying experience of the customers and also reduced the Turn Around Time (TAT). These days, customers look for receiving proposal details, acknowledgement of payment etc by e-mail or sms immediately after the close of transactions. INSTAB makes that happen in real time.

ICICI Prudential too, is making the whole of sales process transparent and simplified by doing the underwriting, KYC validation and policy decision virtually real time.

SBI Life has launched an online system which receives the missed calls of the customers and then tells the customers fund values and other important information about their ULIPs. They have similar missed call services to enable their customers to revive lapsed policies. This is a unique way to improve persistency.

To reduce the incidence of surrenders, SBI Life has developed a software tool called SMART (Surrender Manager And Prevention Tool). This package helps the insurer to check premature surrenders. This tool has won the company first INNOVITI award (2015-16). This Mobile App also helps the sales advisors to access all data related to the

company, industry etc. It even helps the sales advisors to collect customers' premiums online by keying in cheque/ draft number. The premium receipt can be generated instantaneously.

SBI Life is so much serious about engaging the customers that it has created a separate "Customer Engagement" department to take better care of the customers. Keeping the special needs of the high value HNI segment, they have created an HNI Cell in the organisation also. This proves that they do not want to lose high value customers under any circumstances.

Bajaj Allianz has developed a Customer App called Life Assist which helps the customers to get a lot of important post sales services on their own. BALIC Genie software helps agents to understand what documents are required to be submitted along with a particular proposal. Although the software assists the agents in carrying out the sales process, it also helps the customers to get involved in the whole sales process very objectively.

All insurers are now compulsorily under the IGMS system (Integrated Grievance Management System) of the IRDAI. Whenever a complaint is registered in the portals of the insurers, it gets escalated to the website of IRDAI automatically. An insurer is supposed to redress all grievances within 15 days. The customer can also lodge complaints in the portal of IRDAI and the complaint will automatically come to the concerned insurer. This technological intervention is helping the regulators to know the position of the complaint at any point of time. This is a confidence building measure launched by IRDAI and should make the customers more confident to keep his policies in force.

SBI Life's DigiLife is an innovation Lab which scans the comments and feedbacks given by the customers in social media and then tries to improve its level of services accordingly. In fact, all insurers have understood that the social media is where their customers are available for a good part of the day's time. The insurers are trying to make the customers aware of the value of insurance and the need to keep the policies in force for a long time.

ICICI Prudential uses e-CRM with the help of SAS and Teradata solutions. That enables it to integrate the functions of front office, back office and analytical system. Ultimate objective is to increase retention of customers and facilitate up-selling and cross selling. AVIVA Life is using Talisma e-CRM software which enables it to quickly access the customers, upgrading offers to customers and integrate the functions of the agents and operational units. All this is supposed to improve persistency. Reliance Life is using a web enabled IT system for superior customer servicing. Talisma software system not only helps the insurer to provide good services but also enables it to make regular customer interaction, predicting customer behaviour and sending appropriate communications to different customer groups.

SBI Life has developed a CRM software that integrates the systems of the insurer with the promoter bank (i.e. SBI). This enables the insurer to understand the profile and behaviour of the customers in better ways. This software tool enables the insurer to decide which customer can be handled at the agent level and which should be escalated to higher level. This helps the insurer to resolve the complaints very fast. This software not only serves the existing customers but also engages the potential customers (i.e. the customers belonging to the promoter bank, SBI).

I have already mentioned about the scope of Artificial Intelligence (AI) in improving engagement with customers. Some Indian insurers are already leveraging the power of AI, Chatbots, robotics and language processing. HDFC Life's SPOK (name of a robot) can read, understand, categorise, prioritise and respond to customer e-mails within milliseconds. This not only reduce cost of communication, it also improves customer experience. HDFC Life has already tied up with a start-up called "Senseforth" to use SPOK to identify the real needs of the customers and also identify trends and patterns of customer behaviour on the basis of such interactions.

A web-aggregator like EasyPolicy.com uses chatbot to provide all essential information to the customers. They feel that it is very easy to train a chatbot to remember all product features of all important products launched by so many insurers. The chatbot can pass on that information very quickly to the customers. It will never be possible for a customer service executive to provide so much of information so accurately and in such a short period of time. In fact, a chatbot has the power to replace the services of 200plus call centre executives working for an insurance company.

"Khushi" is a similar chatbot launched by PNB Metlife. It has been developed at MetLife's innovation centre, LumenLab at Singapore. When customers of PNB Metlife put on their Virtual Reality headset, they find themselves in a 3-D simulated virtual room, face to face with "Khushi", a virtual avatar. "Khushi" is able to engage a lot of customers

simultaneously and provide necessary guidance and support. "conVRse" (name of the project) was inaugurated by IRDAI Chairman, Mr. T.S.Vijayan in December last year.

People may think, will the chatbot be able to engage customers with a voice that is so metallic. HDFC Life's SPOK has been designed to mimic human cognitive abilities of reading, comprehending, interpreting and conversing. Digital technology has really developed beyond our imagination in recent times!

In health insurance space, the insurers are using analytics extensively to understand the needs and requirements of the people living in Tier-2 and Tier-3 cities and it is technology only which has enabled them to get clients from far off areas without opening brick and mortar offices there.

FinTech is Changing Insurance Business Everywhere

The insurers all over the world are making extensive use of the advanced digital technology. They are using technology more as a disruption tool. They have understood that information technology has the potential to change the way insurance business has so far been carried out. They are using more of FinTech and even InsurTech, which are nothing but technological solutions of complex problems. The fact is many of the complex problems can not be solved by using the present level of information technology.

Fintech usually refers to Technology Start-Ups that are already disrupting sectors like mobile payments, money transfers and asset management. Insurance industry has been slow in discovering the power of FinTech but some countries notably UK, Germany, France and US have started investing in FinTech quite generously. The technology which is used by the insurance industry of these markets is sometimes also known as InsurTech. In the days of rapidly changing customer behavior and financial regulations, FinTech has much to offer to the insurance industries of developed and emerging economies. InsurTech is all about knowing each customer more intimately and then offering them personalised insurance products and services. InsurTech enables the insurers in developing direct contact with customers, often with the help of Artificial Intelligence (AI).

As already mentioned in the previous section that some Indian insurers are moving in the right direction by adopting AI with the help of FinTech companies. They have to do it more. The young generation has already welcomed it and insurance industry can move forward only by creating an excitement about insurance in the minds of this generation. What amazon and apple has done, insurers can certainly do that. It will require change of mindset.

In the 17th Century England, Edward Lloyd's Coffee House was the place where the shipping companies used to sit with the insurers to set up insurance contracts. Even in case of life insurance, insurers and prospects used to sit together to decide price, quantum of insurance cover, policy conditions etc. Everything was transparent and hazard-free. Since the beginning of 20th century, selling of insurance products became agency driven and the direct contact between the insurer and the insured weakened considerably. That was a major disruption in the insurance industry. So, agents, brokers and bancassurance made a significant disruption in the way insurance had been sold in 18th and 19th centuries. The whole of 20th century saw agents, brokers and banks selling and servicing insurance and the insurers in many cases had little control over the activities of insurance intermediaries.

Now, a new disruption is going to change the insurance business again. Fintech, manifesting itself in cutting edge technologies like Internet Of Things (IOT), Business Analytics and Telematics is all set to disrupt the business processes of Insurance industry again. FinTech is enabling the insurers to engage with customers on a regular basis and improve customer experience manifold. Insurers are now able to make product development and pricing at the individual level.

Technology brought by FinTech is helping the insurers to sell insurance products to lower income people. Data analytics, biometric identification, increasing use of mobile phones etc are making it possible for insurers to broaden their customer base and sell insurance at a very affordable price to the price conscious segments.

Insurers of many European countries are already tying up with Tech Start-Ups. Aviva of UK is regularly hosting Hackathons and Start-Up Weekends to help the company staff to make stronger bonding with the tech startups. Axa has tied up with Google's Niantic Labs Division to develop a very interesting and interactive insurance game (through Mobile App) called Ingress. The game educates the people and suggests them insurance products that can best serve their needs.

In Germany, Allianz has tied up with the telecommunications company Deutsche Telekom to launch sensor embedded and data driven services for the retail and commercial customers. US insurer

Allstate has built a huge Innovation Lab for its employees to use technology to generate new solutions to business problems. In such Labs, the ideas of the employees are tested for viability and effectiveness.

Some FinTech companies are going one step forward. They have started selling Peer To Peer (P2P) insurance to groups of people and they call such insurance agreements as "Friendsurance". This kind of insurance contracts are very transparent and customers are saving a lot on insurance premiums. Insurers are avoiding direct competition with them by making them partners and consultants.

Accenture Technologies conducted a survey among hundreds of insurance executives across the world to understand what they felt could transform the insurance industry. A whopping 86% of respondents said that the industry could move forward only if they took measures to innovate at a much more rapid pace. They actually felt that the insurers must adopt latest technology to become more relevant to customers, agents, employees and other stakeholders.

> Indian life insurance industry has immense growth potential. People are still heavily under-insured and also uninsured. Those who are insured do not necessarily keep their policies in force for a long time.

Worldwide, insurance sector has seen least innovation among all industries. Customer Loyalty depends a lot today on innovation. The degree of customer loyalty enjoyed by a company is measured by an index known as "Net Promoter Score" (NPS). Even the most powerful insurers of US get low NPS. When anything can be procured in the world today through a few clicks of mouse button, insurers hold on to old ways of selling products and serving the customers. Fortunately, FinTech may compel the insurers to do many things differently.

Accenture's Digital Life & Health Innovation Tracker has identified the following trends in the mature insurance markets of the world:

1. Innovative insurers are partnering with companies outside insurance industry and even beyond financial planning industry.
2. Insurers are creating new types of business opportunities and enhancing their brand image through social aggregation media.
3. Insurers are increasing perceived values of products and services by improving customer experience.

Accenture made another worldwide study among 33,000 insurance customers across the world and found the following results:

1. Almost 75% of customers are open to the robo-advice (i.e. robot generated advice) for purchasing insurance policies.
2. More than 66% are open to robo advice for retirement planning.
3. To understand the features of complicated products and also to get grievances redressed, more than 66% customers prefer top quality human interventions.
4. More than 50% customers look for only personalised services, with or without the help of high technology. They also want personalised advice on how to stay healthy.

Therefore, we find that Artificial Intelligence (AI) is already invading the insurance industry across the world. In fact, insurers claim that they offer holistic robo-advices. People contact agents and brokers today for top quality advice on specialised products. They also require assistance of knowledgeable employees.

Customers want quite different things from insurers today in addition to what they get traditionally as per the contract. The customers look for health monitoring services from insurers. They expect that insurers will help them in the events of health emergency. All this can be possible if technology of very high order is in place. People with high domain knowledge of technology should be allowed to make value additions in insurance industry.

Learnvest, a FinTech startup acquired by Northwestern Mutual Life Assurance Company provides each customer robo assisted advice across their entire financial existence. Learnvest uses a combination of human financial planners and robo assisted planning, to arrive at right solutions. They also help the insurance agents in suggesting right products to customers.

Accenture has created "Cathy" who collects service requests from customers across all channels and provides answers in quickest possible time. Cathy is not an individual but a robot with artificial intelligence. Cathy is an acronym for Cognitive Agent To Help You. Cathy has the power to process natural languages, use sophisticated data analytics and also use domain

knowledge to provide the necessary services. Cathy can also perform sentiment analysis and pass on a report to someone who is a knowledgeable insurance employee and can handle the situation better.

Artificial Intelligence also takes the form of Chatbots and Virtual Agents. Allie is a virtual agent of Allianz Australia. Customers can learn about the insurance products of the company from Allie 24X7. Virtual agents are answering various questions, initiating work on the basis of customer requests and even assisting intermediaries in selling insurance products. Chatbots are meant to carry on e-chat anytime.

Insurers around the world spent $22.3 billion on FinTech last year. Insurance Technology, InsurTech consisted of $2.6 billion out of these. Insurers are able to help their customers in the areas of healthcare, wealth management and home security. Insurers are tying up with a variety of service providers so that the customers get a variety of services from them. Such arrangements are not only helping the customers to get solutions to their myriad problems from one platform, these are also helping the insurers to increase their revenues. A recent worldwide survey has shown that 57% of customers are willing to share more personal information on a regular basis if they can get more value added benefits from their insurers.

Artificial Intelligence is not much used in our country presently. But, since our industry has been opened up for foreign insurers, the global insurers may start doing business here with all their FinTech and InsurTech resources. Now that they can own up to 49% of the companies here, they may find it very convenient to set up tech infrastructure here and start doing business the way they are doing in their own countries.

There is no dearth of tech talent in our country. Many Business schools of the west are studying the case histories of Indian start ups. Some retail start ups have already created a huge favourable brand image in the minds of people. Some tech startups are already catering to the needs of financial sector. They have not come to be of much use to the insurance industry because the insurers here have already established different kind of business models.

Indian life insurance industry has immense growth potential. People are still heavily under-insured and also uninsured. Those who are insured do not necessarily keep their policies in force for a long time. FinTech can help insurers to identify factors responsible for lower growth or lower persistency. It can also tell us what customers expect from the insurers and what kind of efforts can be rewarding for the insurers.

Insurance industry of India is a repository of vast data. It can collaborate with FinTech start-ups to gain more insights into customer behavior and customer aspirations. Since, customer base of the industry is about 40 crores (it is actually more if we include people purchasing social security schemes of the government), it is humanly impossible to reach out to each customer on a regular basis. But that is precisely what the customers are looking for today. Only a very advanced technology known to the start-ups launched by top class experienced computer scientists can make it possible to offer personalized products and services to the customers. Technology in the form of artificial intelligence and telematics can analyse the customer behavior very quickly and regularly.

Use of advanced digital technology like FinTech will not reduce the importance of agents, brokers and Bancassurance partners. It will help them in selling right products and giving the right kind of services. But yes, the insurers' employees have to learn new skills to stay relevant in the industry. They need to be extremely knowledgeable in the field. High technology alone can not bring great business or improve persistency ratio. The employees will have to be customer sensitive and should also be able to give top quality advice to the customers. High level of information technology should act as enablers for the industry. The industry will have to develop the mindset to use analytics and AI more and more in procuration of business, delivering of desirable kind of services and retention of customers. Tomorrow's leaders of insurance industry will be those who are willing today to change the present model of product development, distribution, customer engagement and skill development.

Data Driven Risk Management in Insurance Services

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Abstract

Insurance service is all about risk management. It can be done best if risks are quantified wherever possible and the impact of risk management too are measured. Risk is measured in terms of probability of something happening or not happening. In case of insurance service, it can be related to perils or some undesired happenings.

In the present information age where technology has made data capturing, storage, analysis and sharing at a large scale quite easy and affordable, insurance service is fast changing to keep the pace. This is further adding to the development of new techniques suitable for insurance services and their adaption.

This paper discusses and demonstrates a data driven approach towards measuring risks, measuring the sensitivity of risks with respect to changes in the system variables and applying them in risk management in insurance services by experimenting with an approximated model of health insurance.

Keywords
Risk Management, Insurance, Simulation, Scientific Decision Making, Data Driven Approach.

Introduction

Quantifying the risk and its sensitivity to changes in system variables is probably the most important step in risk management. Risk management will

be very subjective and vague if done without quantifying. Scientific Insurance practices need to quantify risks and their sensitivity towards variables being managed. The decisions regarding whether or not to insure a risk, and if insuring, then what is the premium amount to be charged and other conditions like excess and exclusions etc. need to be based on scientific determination of risks. This requires a data driven approach.

Insurance adds value in risk management in every area of work. Whether it is agriculture or space research; an immovable property or a movable item like motor; machines stationed in a workshop or being transported to other location; life or nonlife; health or death; Insurance plays important role in risk management everywhere. In doing so, it has its own risk that can be managed effectively with modern techniques using data.

Quantity of risk depends on various variables associated with the system. As the value of a variable changes, the risk also changes. However, the change in risk is not uniform. Somewhere it changes rapidly with a change in variable values whereas somewhere else it changes very slowly. Its sensitivity to the changes in variable values is an important strategic parameter in risk management.

Quantification of risks and their sensitivity can be used in insurance service in various activities like identifying insurable risks, risk based underwriting, and managing finances etc. A high risk situation with low sensitivity may not be of interest for insurers from a business point of view. Similarly a low risk situation with low sensitivity may not be an area of insurance for likely customers.

Insurance service extends its role to every section of society and hence data from any walk of life can be useful to its operations. Present advancements in analytics and technology have made it cost effective to handle large volumes of data and to apply intelligent techniques in risk management in insurance services.

Insurance services can add values when the risk is in sensitive range and can be managed by risk management practices. Here, one can create a win-win situation for both the insurer as well as insured.

There can be various approaches towards measuring risks and their sensitivity towards changes in the variables. It can be based on some mathematical modelling and analytics or it can be data driven. Insurance service extends its role to every section of society and hence data from any walk of life can be useful to its operations. Present advancements in analytics and technology have made it cost effective to handle large volumes of data and to apply intelligent techniques in risk management in insurance services.

In this paper, an indicative health insurance product is being taken for a data driven experimentation. The aim is to get an insight into the way the probability of this product being profitable varies with changes in system variables. This helps in bringing the risk of loss within the acceptable range.

A Model for Experiment

An experiment has been conducted on a model of a health insurance product. The results represent the real system if the model on which the experiment has been done is a valid model. There are statistical checks to check the validity of a model. Since, the aim of this paper is to highlight the usefulness of a data driven approach in risk management, the model has been selected assuming this to be a valid one. The model is given below:

A health insurance product has been designed to cover the health risks of people working in BPOs. As their lifestyle has few specialities, this insurance product considers them in covered health risks. Also, based on various expenses involved in health care services for people with such health risk profile, a claim amount distribution has been modelled Based on this data, it has been found that the probability of claim happening in a year in a policy is 0.15. If the claim happens then the claim amount distribution is uniformly distributed in the following claim amount ranges with given probability:

Between 0 and ₹ 60000 with a probability of 0.5, between ₹ 60000 and ₹ 160000 with a probability of 0.3 and between ₹ 160000 to ₹ 300000 with a probability of 0.2.

The insurance company offering this product has an accounting practice of assigning 20% of the premium collected as operations cost. Hence, only the remaining 80% of the premium can be available for claim settlement. If the actual claim exceeds this amount, the product runs in loss. Initially, it is

worked out that a premium of ₹ 8000 per person per year should be competitive enough to make the product attractive for both the insurers and insured.

If this product is taken by a BPO organization for its employees with an employee strength of 1000, then the initial calculation shows that this product is quite risky for the insurer and is likely to cause huge loss with high probability. With 1000 employees, the premium amount collected would be ₹ 8000 * 1000 = ₹ 8000000. If 20% is accounted for operations cost then remaining 80% of that = 0.8 * ₹ 8000000 = ₹ 6400000 is available as net premium. According to the claim amount distribution, the expected total claim amount is likely to be 75 * 30000 + 45 * 110000 + 30 * 230000 = ₹ 14100000. This amount is higher than the net premium by ₹ 6400000. It means that this product is likely to result in loss of ₹ 7700000 in one year with 1000 policy holders.

Experiment

This situation is not a deterministic situation. So it cannot be concluded that this product will result in such loss every time it is implemented. There is some probability of getting loss. May be high. As a good risk management practice it is useful to quantify this probability and experiment with different variations to bring the probability within acceptable range.

The present model has following system variables:

Probability of claim, upper and lower values of the three claim amount ranges, probability of claim amount lying in each of these ranges, distribution of claim amount within the claim ranges, operations cost, premium amount, number of policy holders and excess applicable.

This model is simulated using Microsoft Excel in such a way that one can experiment by changing the system variables easily. Simulation is done 500 times to see the pattern of profit/ loss. With the existing values of system variables the result shows loss in every simulation run. This indicates that the probability of profit is practically 0 with the existing product.

Some of the system variables can be changed easily by implementing few decisions. For example, the operations cost as 20% of premium collected can be reduced by cutting on some costs. Applying excess can be the easiest one where one can decide about an amount below which the claim will not be payable. Probability of claim can be changed by excluding or including certain diseases from the coverage of the product. Even the claim amount distribution can be changed by including or excluding some of the costs related to treatment of covered diseases. Some changes may improve the probability of profit but may also make the product unattractive to the customers. A very common approach is that to improve the profit increase the premium amount. When the premium per policy per year is increased to ₹ 12000, the number of cases of profits out of 500 simulation runs remains 0. Increasing the premium to ₹ 25000 and conducting 500 simulation runs gives profit in all the 500 cases. This indicates that the probability of profit becomes almost 1. If the premium is kept at ₹ 20000, there are 453 cases of profit out of 500 making the probability of profit .906. Increasing the premium in the beginning didn't improve the probability of profit. However, at around ₹ 20000 premium, the probability of profit looked changing significantly. Changing the premium to ₹ 20000 – ₹ 25000 for an insurance product where one started with ₹ 8000 may upset some of the assumptions in the model and may make the product unacceptable by the people for whom it has been designed.

So, in this experiment, sensitivity of the probability of profit with respect to changes in variables have been studied to formulate such strategy that makes the probability of profit high enough for the insurers and also keep the premium amount low enough for the customers. The experiment is conducted by changing premium, by applying excess, by reducing operations cost and by changing the probability of claim. This is done to get about the sensitivity. Then few combinations are tried to get some attractive alternatives.

For all these experiments, Monte Carlo Simulation technique has been used on the health insurance product model given above. This technique involves generation of random numbers and associating them with real system variables using the model. For each of the changes, 500 simulation runs have been done.

Results

The data generated through simulation looks similar to data obtained through real system by implementing various alternatives and observing for the coverage period. They represent the real system if the model used in simulation is a valid model. These data can be analysed in different ways to get the required insight about the system. However, in this work, the risk involved with the product is being indicated by the probability of loss. Doing it other

way, the probability of profit is the main point of interest. Hence, the results are presented here to show the number of simulation runs resulting into profit for different values of system variables and this number converted to probability for easy understanding. The number of simulation runs in each case is 500.

Table 1 below gives probability of profit for different values of premium keeping rest of the variables unchanged in the original product.

Table 1: Sensitivity of Probability of Profit with respect to Changes in Premium

Premium in ₹ per policy per year	Number of cases of profit	Probability of profit
8000	0	0
12000	0	0
15000	27	.054
18000	297	.594
20000	453	.906
22000	494	.988
24000	499	.998

> Probability of claim can be changed by excluding or including certain diseases from the coverage of the product. Even the claim amount distribution can be changed by including or excluding some of the costs related to treatment of covered diseases.

Sensitivity is quite low for premium below ₹ 15000 and above ₹ 20000. But between these values, the probability of profit changed fast.

Table 2 below gives probability of profit for various values of excess applied on the claim. Any amount in excess to this amount will be payable. Rest of the variable values remains same as the original product.

Table 2: Sensitivity of Probability of Profit with respect to Changes in Excess

Excess applied on claim amount in ₹	Number of cases of profit	Probability of profit
0	0	0
10000	0	0
25000	0	0
50000	8	.016

Result shows that even by applying an excess of ₹ 50000, the probability of profit remains quite low. Applying such high excess is anyway not a good idea.

Table 3 below shows the change in probability of profit with respect to changes in the probability of claim. Rest of the variables in the system remained same as the original one.

Table 3: Sensitivity of Probability of Profit with respect to Changes in Probability of Claim

Probability of Claim	Number of cases of profit	Probability of profit
.15	0	0
.1	0	0
.08	70	.14
.06	412	.824
.05	487	.974

When the probability of claim is reduced to 0.1 then too there is no simulation run out of 500 runs indicating profit. Hence the probability of profit is as bad as 0. But, when the probability of claim is reduced to 0.08, there are 70 simulation runs that resulted in profit. Further decrease in probability of claim to 0.06 and 0.05, increased the probability of profit to 0.824 and 0.974 respectively.

Now, below table gives how reducing the operations cost can impact the probability of profit. Here again, rest of the variables have same value as the original product and only the operation cost value is changed for the experiment. Since the original product is heavily loss-making, increasing the operations cost as percent of premium collected will not help. Hence only reductions are tried.

Table 4: Sensitivity of Probability of Profit with respect to Changes in Operations Cost

Operations cost as % of premium collected	Number of cases of profit	Probability of profit
20%	0	0
10%	0	0
5%	0	0
3%	0	0

Operations cost is not a factor in the present situation for influencing the probability of profit. Reducing it to even 3% of premium collected doesn't change the probability of profit.

Increasing the premium, applying excess and reducing the probability of claim are hard decisions for the customers. Improving the probability of profit by changing one variable only

makes the product unattractive. For example, to make the probability of profit around 0.97, the probability of claim should be brought down to 0.05. This means not covering some of the diseases. It doesn't solve the basic purpose of health insurance. Hence, a combination of variables are tried to make the probability of profit attractive for the insurers and also the product attractive for the customers. Table 5 below gives probability of profit for few tried combinations of system variable values.

Table 5: Probability of Profit for Selected Combination of Variable Values

Premium	Probability of claim	Excess	Number of profitable runs	Probability of profit
12000	0.12	10000	138	0.276
15000	0.11	10000	490	0.98
13000	0.11	10000	384	0.768
13000	0.10	10000	467	0.934
12000	0.09	10000	471	0.942

Few combinations of premium per policy and probability of claim in a policy are tried here keeping the excess at ₹ 10000 only. If the insurer is less risk taking and wants to launch the product only when the probability of profit is at least 0.9, then the table 5 shows that keeping the premium as ₹ 12000 with probability of claim in a policy around 0.09 gives the probability of profit as 0.942.

Conclusion

It started with an insurance product that was too risky for the insurance service provider. With a data driven approach and experimenting with the service model it could be finally derived as an attractive alternative for insurers and insured. Such approach provides a cost-effective and easy-to-experiment system that can be used in gaining important insight into the real system and accordingly take well experimented conscious decisions to manage the risk.

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Insurance in Information Era - Leveraging Technology

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Introduction

In this digital era, technology has blended in almost all our activities. Technology has become inseparable from human livelihood and has occupied an undisputable and unstoppable space in replacing human intelligence. In the competitive environment one who uses efficient technology to optimum level can take up the driving seat. Change is accelerating and upcoming new technology is challenging and overriding existing technology and making it redundant. This so called new technology is wiped away with a better one just as a passing cloud. This is an ongoing phenomena and what we perceived as BIG and as an innovation yesterday has become SMAL L and obsolete today due to the advent of better technology day in and day out.

Space occupied by insurance in the technological platform is very minimal. A recent KPMG survey showed that 48 % of global insurance companies are experiencing disruption from new technology and more nimble competitors. This seems to be seen particularly in case of North America, but also increasing in Europe. Another survey undertaken by Willis Towers Watson (WLTW) showed that 58 % of senior executives in insurance sector acknowledge the fact that they are behind other financial sectors with regard to exposure to digitized technology.

The Hurdles Before Insurers in Leveraging Technology

1) High operational cost.
2) Legacy issues with regard to old and complex data.
3) Data security.
4) Operation of multiple systems and complicated spread sheets.
5) Cyber extortion, cyber crime/cyber fraud and third party attack.
6) Changing regulatory requirement.
7) Changing phase of technological transformation is fast and insurers are not clear where to start and where to stop.
8) While transforming technology, insurers need to ensure existing service is not hampered. There is no stop of service changes and parallel service to existing customers is a challenge.
9) Low penetration and slow phase of growth keeps insurer thinking before scaling up their investment in technology.
10) Involvement of multiple platforms and stakeholders.
11) Lack of continuous learning and training amongst employees and stakeholders.
12) Attrition of talents and lack of continuity.

Current Scenario

Overcoming all these difficulties, insurers have equipped themselves with advanced technology and have shifted from the conventional platform of sales and service to a digital platform. Technology is activated to compare policies and give best solution to customers, Web based solutions and web based show case of products, and few basic service lines have been developed, internal automated processes also has been rolled out in certain areas to enhance efficiency and productivity. Though, these developments in insurance industry can be described as a welcome move, we need to accept the fact that insurance industry is far behind in using technology and it is still in its nascent stage when we compare the prevalent impact of technology in other sectors.

Way Forward : By 2020 Insurance Industries Need to Optimize Technology to Reach the Following Fete: -

1) Insurers need to shift from focusing on investing more in technology. They should enable involved people viz. customers, employees and intermediaries and stakeholders to do more with technology. Consolidation of efforts and collaboration amongst stakeholders is required to meet this objective.
2) Flexibility and personalization in customer experience – interface between insurers and their customers will continue with more seamless engagement encompassing desktops, smart phones, tablets and wearable. This will imply a simpler user facility.
3) A shift towards actively managing risk as well as carrying it through big data and the increasing prevalence of connected sensors in our lives.
4) Internet of Things – customers and insurers will be able to constantly share insights with each other simultaneously.
5) Emergence of multi-line insurance offerings, for the benefit of customers.
6) Linking of customers' insurance and their family members' insurance in one unique id and dematerialization of policies of individuals and family members.
7) Technology has to reach a stage wherein when a member is added by birth, a quote for new insurance should reach the family and at the same time when death is registered, immediately claim amount should reach the claimant's bank account. This is possible by linking unique id like Aadhar number in each milestones.
8) A shifting of distribution environment – both online models and price comparision websites are coming to dominate, increasingly tailored for mobile devices as well as desktops.
9) Online forms of regulated financial advice are developing, both so-called robo-advice driven by algorithms, and simply more efficient customer drive fact-finding processes.
10) Using predictive analysis for the entire journey of the policy to give better customer experience and to prevent leakages.
11) Automation and interactive response and transparency in all service from new business to claims will create customer's confidence.
12) Exploring new and cheap business models.
13) Mobile technology is enabling the spread of on demand tailored made insurance as well.

14) On demand usage based platforms to meet the increasing demand for personalized insurance solutions.

15) Drones – Areal assessors to improve business functions.

16) Spin cam to record 360 – degree of spin image at customer's location.

Future Technologies

Apart from the above emerging technological tools, two prominent technologies which will be a challenge to insurances are Blockchain and Artificial Intelligence.

Blockchain – the underlying technology first used in Bitcoin – is a new type of distributed consensus system that enables transactions to be quickly validated and securely maintained through cryptography, computational power, and network users, removing the need for a trusted centralized authority. The block chain provides an immutable record and audit trail of transactions and agreements that are replicated on computers around the world thereby eliminating a single point of failure.

A 2015 study by the World Economic Forum found that 58% of surveyed executives and experts from the information and communication technology sector believe 10% of global GDP will be stored on block chain technology by the mid-2020s Insurance industry observers for their part believe that the innovative distributed ledger could introduce a variety of improvements and efficiencies to the insurance landscape, including establishing a level of accountability and transparency that hitherto was impossible, mitigating risk and fraud, streamlining back-office operations, introducing new products, lowering costs, and providing easier and improved data access to parties.

Artificial Intelligence enables software to exhibit human-like intelligence, including learning, planning, reasoning problem-solving, and decision making, AI is still far from its expected potential. Moving forward, the technology could help insurers enhance automation, reduce risk and expense, increase productivity and facilitate better faster decision making. It is expected that the technology will impact insurers indirectly through its widespread usage in various fields such as medicine and transportation in future.

Conclusion

Insurance executives are well aware that the technology revolution currently underway is a threat as well as on opportunity for the traditional insurance industry.

Emerging digitization and innovation are starting points to transforming the insurance industry as the new era of transformation needs to focus on ways to measure, control, and price risk, engage with customers, optimize cost, increase efficiency and has to swiftly penetrate to the insurable population to spread insurance. Insurers should leverage the upcoming technology to convert negatives like "life insurance is sold, not bought" into a positive note like "Insurance is bought and bought again and it is not sold". Yes this is possible because the entire insurable population is a tech savvy population and only with advent of revolutionary technology we can win their hearts and let us ensure to attract this tech savvy population to have an amazing and world class digital insurance experience.

Non-AOG Catastrophic Bond (Proposed Structure)

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Abstract

The average sum insured of an oil refinery or a large petrochemical risk lies in the range of 50- 60 thousand crores. On this sum insured, the average premium is around 0.002% of sum insured. Though 0.002% looks like a very small figure, over a period of time this premium amount translates to a significant amount for an oil refinery. The premium calculation for mega risk is usually done using on PML basis, and not on the sum insured as a whole.

In this paper, we are proposing warehousing/ pooling of different oil refinery risks under a single umbrella and Risk Financing cumulative PML to achieve an overall reduction in Risk coverage cost and provide an opportunity to earn returns to Risk financing stakeholders.

We are proposing Insurance-linked Securities as a risk-financing tool for NON-AOG Catastrophic losses under Non-AOG Catastrophic Bond.

Keywords

Insurance liked Securities

- **Alternative Risk Transfer (ART)**
- **CAT Bonds**
- **PML basis**
- **NON Correlation**

Table / Figures

- Fig 1: Conventional structure
- Fig 2: NON AOG Cat Bond

Definitions

Property Risk Insurance

Property insurance provides protection against most risks to property, such as fire, theft and some weather damage. This includes specialized forms of insurance such as fire insurance, flood insurance, earthquake insurance, home insurance, or boiler insurance. Property is insured in two main ways—open perils and named perils.

Open perils cover all the causes of loss not specifically excluded in the policy. Common exclusions on open peril policies include damage resulting from earthquakes, floods, nuclear incidents, acts of terrorism, and war. Named perils require the actual cause of loss to be listed in the policy for insurance to be provided. The more common named perils include such damage-causing events as fire, lightning, explosion, and theft.

General Policies available: Standard Fire & Special Perils (SFSP) & Industrial All Risk (IAR).

Large and Mega

Insurance of property valuing more than 2500 CR comes under the preview of Mega Policy; Mega policy is most flexible and comprehensive policy.

Premium calculation under the Mega policy is generally done on PML Basis against Sum insured basis which reduces premium substantially.

PML Basis

PML is probable maximum loss estimation; this is the technical calculation of probable maximum loss possible in property under worst case scenario calculated using explosion modeling by the qualified engineer. Based on PML % Of Sum insured, Premium is calculated on single largest location risk.

Typically PML for oil refinery is in a range of 10 -12% of SI. Premium is calculated on this amount only.

Current Method of Risk Transfer

Currently Mega policies are reinsurance driven with insurance companies mainly fronting the deal.

PML are calculated for a single largest location of client and premium charged accordingly under Mega Insurance Policy Wordings.

Alternate Risk Transfer Mechanism

Alternative Risk Transfer (often referred to as ART) is the use of techniques other than traditional insurance and reinsurance to provide risk bearing entities with coverage or protection. The field of alternative risk transfer grew out of a series of insurance capacity crises in the 1970s through 1990s that drove purchasers of traditional coverage to seek more robust ways to buy protection.

Most of these techniques permit investors in the capital markets to take a more direct role in providing insurance and reinsurance protection, and as such the broad field of alternative risk, a transfer is said to be bringing about a convergence of insurance and financial markets.

Risk Transfer VS Risk Financing

Risk financing is concerned with providing funds to cover the financial effect of unexpected losses experienced by a firm.

Traditional forms of finance include risk transfer, funded retention by way of reserves (often called self-insurance) and risk pooling.

Alternative risk finance is the use of products and solutions which have grown out of the convergence of the banking and insurance industry. They include captive insurance companies and catastrophic bonds, and finite risk products such loss portfolio transfers and adverse development covers.

Insurance Linked Securities

Insurance-linked securities (ILS) are broadly defined as financial instruments whose values are driven by insurance loss events. Those instruments that are linked to property losses due to perils trigged represent a unique asset class, the return from which is uncorrelated with that of the general financial market.

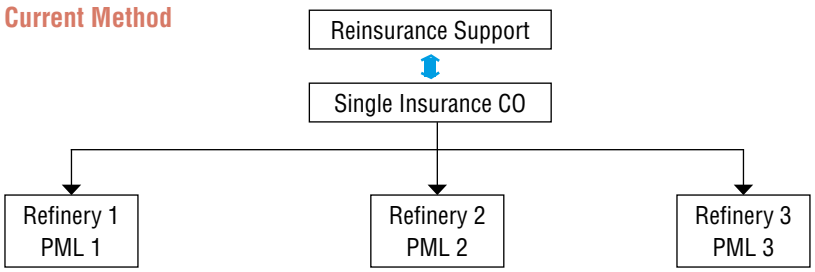
Proposed Structure of NON AOG CAT Bond

Proposing Risk Financing through contingency bond which will be valued on single largest PML for different property under a single umbrella

Conventional Structure

Under conventional Method, Premium is charged to the client based on highest single location PML.

Current Method



Example: if PML 2 (Jamnagar) Is largest for Reliance amongst all refinery, Premium will be charged for this location PML for the entire portfolio of Reliance refinery.

Reinsurance support is taken by single or multiple lead insurance co. against this PML Value. Terms and condition of policy, excess, indemnity, loss of profit etc are decided in policy wordings.

Limitation of Conventional Method

- Single Continent / Country diversification of risk
- Event are high exposure low probability
- High excess on policy
- Hit Bottom line buy paying premium
- High dependence of Reinsurance Market

Proposed (ART) Method

Proposing Risk Financing through contingency bond which will be valued on single largest PML for different property under a single umbrella.

Risk Speeded Portfolio

Property will be speeded in different continents this will make bond safe as Risk will be spread across different continents.

Valuation of Bond

Bond will be valued on Highest PML Basis and Rated by technical experts

Benefit to Investors

- Risk is diversified
- Indemnity is not governed by Financial Market Risk
- High return compared to other securities product
- Non-Catastrophic in nature

Benefit to Insured

Risk Coverage for large not AOG Catastrophic event

- Flexibility for Terms and Wordings
- Participation Bonus
- Provision to cover specific AOG (Act of God) Losses as well

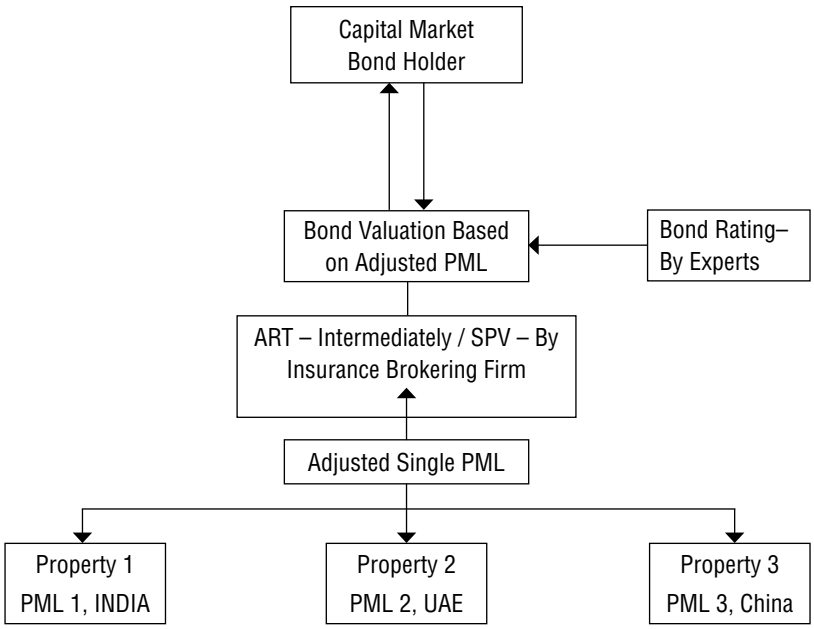


Figure 2: Non AOG CAT Bond structure

> Alternative risk finance is the use of products and solutions which have grown out of the convergence of the banking and insurance industry. They include captive insurance companies and catastrophic bonds, and finite risk products such loss portfolio transfers and adverse development covers.

Valuation of Non AOG CAT Bonds

- Valuation of such bond will be based on spread of the assets
- This bond preferably multinational in nature – offering greater spread
- PML – Probable Maximum Loss will be the basis for valuation of this bond
- Factoring stress and scenario will be done based on country-specific experience
- Bond will be valued in multiples of PML
- PML will be calculated by third party Risk Engineering Experts

Rating of This Bond

Bond will be rated by rating agencies like S&P etc

- Bond will be rated based on Quality of Risk
- Definition of Quality of Risk will be laid down in quantitative measures

- Technical and credibility of SPV created

Bond Rating such as A +, A++, B etc

Benefit of NON AOG CAT Bond

- Risk Spread – Non correlation type of risk spread (Independent event)
- Opportunity to earn for investor / financers more than general bonds
- Returns are not correlated with general financial market

Benefit of Risk Warehousing for Client – (Insured)

- Lower Risk Management cost
- Opportunity to negotiate on terms and flexibility of terms
- Benefit of Coasean bargain

Major Challenge

- Risk Portfolio creation and valuation

- Relatively High Risk – Due to single largest PML Trigger
- Single largest PML Calculation
- Valuation of bond
- Deciding terms and clauses of indemnity / Pay out
- Global Fund – Possibility of country specific regulatory issues
- Domestic Re insurance companies like GIC Resistance
- Trade policies.

References

http://www.artemis.bm/deal_directory/
http://www.investopedia.com/terms/c/catastrophebond.asp

Annexure

Existing AOG Bonds available globally

	Issuer	Cedent	Risks / Perils covered	Size	Date
▶	Integrity Re Ltd. (Series 2017-1)	American Integrity Insurance Company of Florida, Inc. via Hannover Rück SE	Florida named storms & severe thunderstorms	$178m	May 2017
▶	First Coast Re Ltd. (Series 2017-1)	Security First Insurance Company	Florida named storm, severe thunderstorm	$150m	Apr 2017
▶	Kilimanjaro II Re Ltd. (Series 2017-2)	Everest Re	U.S., Canada, Puerto Rico, D.C. named storm and earthquake	$300m	Apr 2017
▶	Kilimanjaro II Re Ltd. (Series 2017-1)	Everest Re	U.S., Canada, Puerto Rico, D.C. named storm and earthquake	$300m	Apr 2017
▶	Pelican IV Re Ltd. (Series 2017-1)	Louisiana Citizens	Louisiana named storm	$100m	Apr 2017
▶	Sanders Re Ltd. (Series 2017-1)	Allstate	U.S. named storms, earthquake, severe thunderstorm, volcanic eruption, meteorite impact	$375m	Mar 2017
▶	Aozora Re Ltd. (Series 2017-1)	Sompo Japan and Nipponkoa Insurance Company	Japan typhoon	$480m	Mar 2017

Study of Awareness of Consumers Towards General Insurance Schemes in India: With Special Reference to Odisha

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Abstract

Though insurance is a well-known risk transfer mechanism, practised in India for more than 200 years, general awareness about the subject remains low. It is well understood that as in the case of the country, the State of Odisha has vast potential for insurance. This potential can be attainted, if proper and adequate awareness is created or generated among the people. Creation of awareness among the people about the insurance can create a huge array of opportunity and can give a bigger contribution both by increasing the penetration and density of Indian Insurance market. Even today most of Indians are buying insurance as an investment option. It is a big and complex task to create awareness about insurance as a concept, as well as make its importance, significance, different schemes and products across different companies known to people. In this study, an attempt has been made to identify the level of awareness of Odisha's people regarding general insurance. This study is also relevant from the point of view of analysing the significant association between different segments of demographic profile and awareness regarding general insurance schemes. The findings of the study will help the Insurance Companies to focus on this aspect to increase their market share, level of penetration, density which ultimately helps the growth of India as well as Odisha. Attempt has been made to know either there is any significant association level of awareness and different determinants under demographic profile like Gender, Living place, Education, Age, Income and Occupation or not.

Keywords
Consumer, General Insurance, Awareness, Adoption, Demographic Profile.

I. Introduction

At the end of March'2017, there are 55 insurers operating in India out of which 24 are life insurers and 31 are non-life insurers (including health insurers) apart from 2 reinsurers. Though the Indian non-life insurance sector witnessed a growth of 8.1% during 2015 against global non-life insurance premium 3.6%, the share of non-life insurance premium in global non-life insurance premium was at 0.75% and India ranks 18th among 88 countries. (IRDA Annual Report 2015-16) During the first decade of insurance sector liberalisation, the penetration of insurance sector was 2.71% in 2001, which became 5.21% in 2009, then declined and in 2015 it became 3.44%. Similar trend in insurance density which reached the maximum USD 64.4 in the year 2010 from USD 11.5 in 2001. During 2015, the insurance density was USD 54.7. With respect to non-life insurance the density is USD 11 in the year 2014-15 and in the year 2015-16 it became USD 12 and penetration is .7% and .72% during this period. India is also far behind world averages in terms of insurance penetration and density. (IRDA Annual Report 2015-16). In India biggest concern about the status of insurance is the lack of awareness and second greatest problem is the affordability (Dr. Deviprasad Shetty, Chairperson, Narayan Hrudalaya). It well observed that in non-life insurance sector medical/health insurance and motor vehicle insurance is the fastest growing sector, but if we tried to delineate where do we stand as a country in terms of insurance density and penetration, which are two effective parameters that signifies the insurance consumption, and awareness in a particular area. Since the last few years India has been witnessing a staggering growth in non-life insurance particularly in health insurance sector, still only 15% of the population is protected by medical care insurance coverage and worse than that less than 5% of population buy a plan voluntarily. The key reasons behind such low acceptability is not only the affordability but the lack of awareness and unwillingness on the part of the potential buyers.

II. Literature Review

The review of literature of this study selected recent studies relating to awareness and determinants of general insurance which includes health insurance, motor vehicle and other insurance in India.

1. IRDAI while celebrating Insurance Awareness Day on April 19 (2015) focussed that "Lack of insurance awareness has proved to be one of the hurdles in penetration of insurance across the country."

2. B. Reshmi et al. (2007), found that the awareness of health insurance was found to be 64.0 per cent. Around 45.0 per cent of the respondents came to know about health insurance from the media which played an important role in the dissemination of information. The middle and low socio-economic groups favoured government health insurance compared to private health insurance.

3. Mudgal (2005) in his study while examining whether consumption expenditure of households in rural India was insured against medical ailments or not found that the villagers were not able to perfectly share the risk of all shocks. So awareness about insurance is very less with rural people and insurance companies should create awareness among them.

4. Gumber and Kulkarni (2000), they found that there was strongly need for health insurance among low income households in both rural and urban areas. Due to heavy burden of out of-pocket expenditure on them to seeking health care. So there is a need for education for rural and urban populations on the concept and information of insurance in extending health insurance coverage on large scale basis.

5. Sumindhar Kaur (2006) in his awareness study found that the socioeconomic status and education do play an important role in awareness on health insurance. Awareness and perception regarding health insurance was still very preliminary as observed in his study.

6. Chaitra Manjunath, Deepa Krishna, (2015) told that though the awareness about health insurance was high among the respondents but still they are looking mainly out of pocket at the expenditure pattern. This shows that although the respondents are aware of health insurance but they are not utilizing the same. In order to bridge this gap, it is important to educate them in order to bring about behavior change among the respondents.

7. Gumber and Kulkarni (2002) in their study found out that the need for education for rural and urban population is a crucial aspect on extending awareness about health insurance. This calls for an

effective information, education and communication activities which will improve the understanding of the people about insurance also.

8. Suraj Sirohi1, Chakresh Jain2, *, Aditya Khatri3, Sanjay Dixit4, (2016) in their study suggested that need of the hour is to launch information, education and communication activities in order to make communities aware of the need of health insurance. The major source of information is media (television and newspaper) and among the not aware/ not exposed, maximum is illiterate or had only primary education.

9. Suwarna Madhukamar (2011) found that better Socio-economic status and education do play an important role in awareness on health insurance under the General Insurance.

10. N. Vijay Kumar& Dr. J. Shanmugananda Vadivel (2016) in their study observed that majority of the policyholders are male members, and belong to the age group of 26 to 45 year and are under graduate and most of sample policyholders belong to nuclear family.

11. U. Thaslim Ariff, Dr. K. Sirajuddin, (2016) assessed that there does not exists any significant association between age, educational qualification, occupation, types of policy, type of vehicle and period of holding the insurance but there exists a significant association between gender and monthly income and awareness about insurance.

12. Sukumar Vellakkal (2005) told that Basic awareness on insurance is a situation where people have at least heard about the various aspects of insurance general insurers and non-general insurers as well as in terms of public and private sector ownerships and about different products of insurance.

13. According to a survey conducted by Ph.D. Research Bureau,(2016) around 49% of the population is not well aware and familiar with insurance products in India due to lack of information and awareness about insurance products, 56% of the survey population has not availed any kind of insurance policy/ products due to poor advice, wrong information and lack of understanding of the product, said the survey study.

14. Harshal T Pandve and Chandrakant V Parulekar, (2013) identified that the awareness regarding health insurance in rural population is very low. There is an urgent need to educate the rural population about the importance of health insurance and nationwide surveys are necessary to know the real status regarding health insurance awareness.

15. Vijay Kumar (2012), in his survey conducted in Haryana on 1000 policyholders outlines that there was a significant difference in the buying behaviours of rural and urban policyholders. Other than the insurance agent the other crucial determinants of buying behaviour were identified such as income, economic status, product attributes, and price. These are the most influential factor for selecting the insurance policy among rural and urban policyholders.

16. A recent nationwide survey of over 60,000 households by National Council of Applied Economic Research (NCAER), New Delhi revealed that awareness about insurance is quite high in India. The study clearly indicates that there is a definite scope for increasing the volume of savings in insurance (life and Non-life) even at the existing levels of income, given its distribution and the employment structure.

17. Ahuja (2008) pointed out from his study that determinants of awareness of General Insurance are Gender, Living Place, Education, Income and Occupation etc. But Gender, Living Place and Education, plays vital role of the Determinants of awareness of the General insurance. Higher education and higher annual income increase awareness of health insurance also to other insurance.

18. Gumber and Kulkarni (2014) in their study found out effective information, education and communication activities will improve the understanding of the people about insurance. The health insurance companies should come out with clear cut policy details, and also health insurance companies to develop a viable health insurance scheme, it is important to understand people's perceptions and develop a package that is accessible, available, affordable and acceptable to all sections of the society.

19. Simona Laura Dragos (2014), in his research article, told that many previous researches have shown that Urbanisation, incomes and their distributions, and the population degree of education are relevant factors for the development of insurance sector in any nation.

This research brought out findings that urbanisation influenced significantly the life insurance demand in Asia countries, and high level of financial literacy could be the solution for creating awareness about insurance in India and China.

20. Mouna Zerriaa and Hedi Noubbigh (2015), have tried to investigate the determinants of life insurance consumption in the Middle East and North Africa (MENA) region using a sample of 17 countries over the period 2000- 2012.They have used two measures of life insurance demand: insurance density and insurance penetration. Their research states that adoption about different insurance schemes increases with income, interest rates and inflation and also it highlights that country's level of financial development, life expectancy and educational attainment stimulates life insurance demand in a nation.

21. Policybachat (September 19, 2014) highlighted that among different reasons of poor coverage of non-life insurance, the lack of awareness about benefits of health and other insurance among people is the main reason which haunts the non-life insurance sector in India.The major challenges facing Insurance sector in India today are low insurance awareness among the masses and increased incidence of frauds in the Insurance business.

III. Objectives and Research Methodology

In the back-drop of studying the awareness about the general insurance and its different schemes the study is undertaken with following objectives.

1. To explore the level of awareness of people regarding different investment and savings schemes.
2. To identify the overall awareness of people about general insurance and its different schemes.
3. To analyse the significant determinants of level of awareness under demographic profile of respondents.

This study is based on Primary data source to study the general awareness level of respondents regarding the concept of General Insurance, different Insurance Schemes on the basis of their demographic profile. A structured questionnaire was developed and tested to a group of 23 household's individuals through pilot survey. Then on the basis of answers provided by the respondents and to clarify some of the doubts the questionnaire was further modified for the final survey. As it was not possible to get required data from all the insured's, out of 453 responds, samples of 421 respondents were administered through questionnaire to get the required data and 32 responses were rejected due to confusing and ambiguity in their response. To collect the data from these areas the stratified random sampling technique was adopted. For this study, the demographic profile is based on six characteristics such as Sex, Living place, Age, Educational background, Occupational status, and Income level.

IV: Hypothesis

H_1: There is no significant relationship between Gender of insured and awareness about General Insurance.

H_2: There is no significant relationship between Living place of insured and awareness about General Insurance.

H_3: There is no significant relationship between Age Level of insured and awareness about General Insurance.

H_4: There is no significant relationship between Education Level of insured and awareness about General Insurance.

H_5: There is no significant relationship between Occupation of insured and awareness about General Insurance.

H_6: There is no significant relationship between Income of insured and awareness about General Insurance.

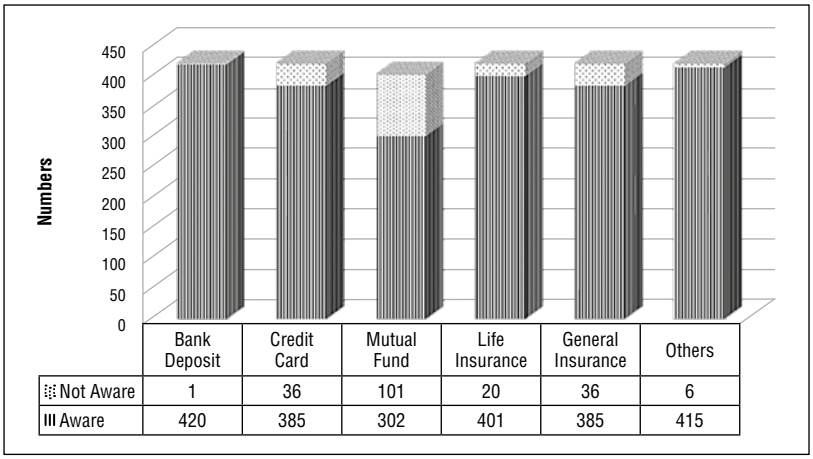
V: Discussion & Findings

Awareness and Adoption Study of Investors about Different Financial Schemes:

The emerging scenario of investment clearly reveals that there is a paradigm shift in the trend of investment and there is also a trend in changing of preference of investors towards new saving instruments. During post twentieth century different types of savings and investment schemes have been accepted and adopted by the investors. It has been observed that during the post twentieth century the investing people has changed their saving habit from traditional investment schemes to new innovative schemes like Insurance, Mutual fund, Share and Securities etc. As per survey findings of L.C. Gupta, **(Gupta,1993)** in his studies the most memorable change in the investment behavior of the people were shifting towards Mutual fund, Units of share, Insurance (LIC, GIC) from traditionally adopted savings instruments like NSC, Banks and postal deposits. In the below mentioned the diagram and table the awareness as well as he adoption level of the respondents have been analyzed.

Diagram-1

Awareness about Financial Schemes



	Bank Deposit	Credit Card	Mutual Fund	Life Insurance	General Insurance	Others
Not Aware	1	36	101	20	36	6
Aware	420	385	302	401	385	415

Source: Primary data

Out of the total respondents (421) maximum respondents are aware about different financial schemes like Bank Deposits, Credit Card, Life Insurance, General Insurance and NSC. But the awareness level for mutual fund less than other financial schemes. After studying the awareness level of the people attempt has been made to know the adoption level of the same respondent. It is being observed that most of the respondents have adopted the several financial schemes but only 320 (76 %) have adopted general insurance schemes which indicates that the less people are adopting insurance particularly general insurance as compared to other financial schemes.

Comparison between Awareness and Adoption of Different Financial Schemes

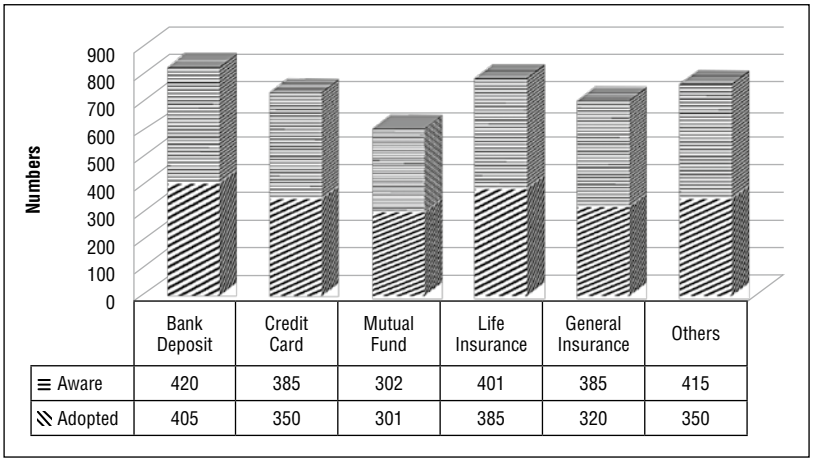
In the below mentioned diagram a comparative study has been made in between awareness and adoption about different financial schemes. It is emerged from the study that awareness and adoption about bank deposit is 99% and 97% and there is little bit difference between two. Next to it awareness and adoption is more for life insurance i.e. 97.5% and adoption is 91.44%. For general insurance the awareness level is 91.44% and adoption level is 76%. For innovative financial instruments like mutual funds and credit card the awareness and adoption is comparatively less than other instruments. It can be concluded that though the people are aware about the general insurance and mutual funds but adoption level is low as compared to other financial schemes due to their lack of understanding regarding its usefulness.

Awareness and Adoption Study of Insured about General Insurance Schemes

General insurance is a protection to the insured against risk and un-certainties and it is risk hedging tool, but one scheme cannot fulfill all the needs of the individuals so appropriate combination is necessary. This general insurance need of person is influenced by his gender, living place, Income, education and his awareness about the importance of the different general insurance schemes. The non-life insurance schemes are so many like health insurance, motor vehicle insurance, Burglary insurance, Fire insurance, Crop insurance and Cattle insurance etc. In order to get the benefit from the different general insurance schemes, the awareness and understanding about its fundamentals and different schemes is very much necessary. It is observed that the general insurance industry has introduced a number of schemes out of which motor vehicle insurance and health insurance have been popularly adopted. First, because health insurance is tax exempted and second, motor vehicle insurance is compulsorily

Diagram-2

Awareness and Adoption of Different Financial Schemes



	Bank Deposit	Credit Card	Mutual Fund	Life Insurance	General Insurance	Others
Aware	420	385	302	401	385	415
Adopted	405	350	301	385	320	350

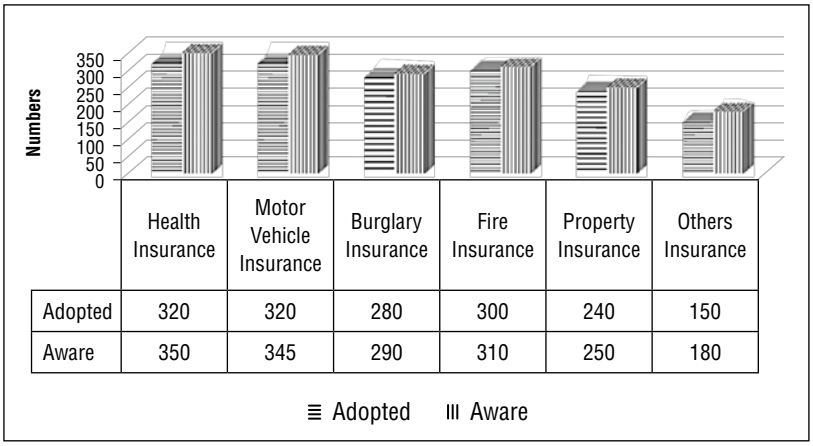
Source: Primary data

required by law. Here under the study the insured's awareness and adoption level has been analyzed. The division of this study measures the insured's awareness and level of adoption to different general insurance Schemes.

more steps should be taken to create awareness regarding general insurance schemes so that more and more people will adopt different general insurance schemes and Indian General Industry will grow.

Diagram-3

Awareness and Adoption



Source: primary data.

From the above diagram it is clearly indicated that, out of the different general insurance schemes which are under the study, respondents are more aware about health insurance and motor vehicle insurance whereas for burglary, property and other insurance like rural insurance, crop insurance and marine insurance the awareness level is comparatively low. For fire insurance awareness level is medium and this is due to the fact that business people and professional people are more concerned with fire insurance. Regarding the adoption level, it is also observed that like awareness more people have adopted two schemes like health and motor vehicle insurance. Out of the total respondents (421), health insurance and motor vehicle insurance adoption percentage is 76% each. But adoption for other insurance like burglary is 66%, fire 71% and other insurance is 7% only. It can be concluded that more and

Awareness and Adoption of Different General Insurance Schemes in Different Socio Economic Segments

In addition to the awareness analysis it has been tried to study the relationship if any exits between adoptions of different general insurance schemes with different demographic features of respondents. As per the observations it is studied that people have started adopting different general insurance schemes which are beneficial for them either due to tax exemption or due to it is compulsorily required. Again people are investing their money in those companies which have a good track record of keeping their promise. Here an attempt is made to know whether any relationship exists among the insured on the basis of their demographic profile while investing their money in general insurance schemes.

V. (a) Awareness of Insured and Sex

Here study is focused on to know either there is any association between awareness of insured about different general insurance schemes and their sex.

Table-1

Gender and Awareness about Different General Insurance Schemes

Gen. Ins. Schemes	Male		Female		Total
Health Insurance	240	68.57%	110	31.42%	350
	13.91%		6.38%		20.29%
Motor Vehicle Insurance	255	73.91%	90	26.85%	345
	14.78%		5.22%		20.00%
Burglary Insurance	210	72.41%	80	27.59%	290
	12.17%		4.64%		16.81%
Fire Insurance	222	71.61%	88	28.39%	310
	12.87%		5.10%		17.97%
Property Insurance	163	65.2%	87	34.98%	250
	9.45%		5.04%		14.49%
Other	120	66.66%	60	33.33%	180
	6.96%		3.48%		10.43%
Total	1210	70.14%	60	29.86%	1725
	70.14%		29.86%		100.00%

Chi-Square = 7.744, D.F. = 5, Prob. = .1709 >.05 so not associated Source: Primary data

From the table following observations have been found.

The table (1) presents that majority of the respondents are aware regarding different General Insurance Schemes. It is observed that out of the total respondents, who are aware about health Insurance schemes, 57% are male and 26.12% are female. Total Respondents for motor vehicle insurance, who are aware is 81.94% out of which 61% are male and 22% are female respondents. Other category of insurance the respondents constitute 43% of the total and male 28.50% and female is 14%. It has been observed that more male respondents are aware regarding different schemes of General Insurance companies than female respondents. As the female respondents' awareness is low as compared to male respondents, the General Insurance companies should conduct more awareness program to make female respondents more aware.

Further to know the association between sex and awareness of different general insurance schemes x^2 test has been applied and on the basis of x^2 test, it is observed that as calculated value prob.1709 which is greater than .05 so there is no association between sex and awareness about different financial schemes.

Here attempt is made to know the whether any association exits between living place and awareness of respondents. The table (2) reflects locations wise awareness about different General Insurance scheme.

V.(b) Awareness of Insured and Living Place

In the below mentioned table (2), attempt has been made to know either any relation exits in between living place of insured and awareness about different general insurance schemes.

It was observed that out of the total respondents (421) who are aware about health insurance, 71% are urban people and 12% are rural. For Motor vehicle insurance their number is 67% and 14% respectively. For Burglary Insurance 66% are male and 26% are female, for fire insurance 70% are male and 35% female, for property insurance 55% male and 4.27% female are aware. But for other categories of general insurance schemes only few respondents are aware. It indicates that respondents irrespective of their living place are not adequately aware about different general insurance schemes particularly for other category of general insurance. So awareness regarding other types of general insurance schemes like rural, crop, cattle should be created by insurances companies through agents. The study reveals that urban people are more aware regarding different schemes of general insurance companies as compared to rural people due to their education, income, occupation and standard of living.

> People have started adopting different general insurance schemes which are beneficial for them either due to tax exemption or due to it is compulsorily required. Again people are investing their money in those companies which have a good track record of keeping their promise.

Table-2

Living Place and Awareness about Different General Insurance Schemes

Gen. Ins. Scheme	Urban		Rural		Total
Health Insurance	298	85.14%	52	14.86%	350
	17.28%		3.01%		20.29%
Motor Vehicle Insurance	284	82.31%	61	17.69%	345
	16.46%		3.545%		20.00%
Burglary Insurance	279	96.20%	11	3.80%	290
	16.17%		0.64%		16.81%
Fire Insurance	295	95.16%	15	4.84%	310
	17.10%		0.87%		17.97%
Property Insurance	232	92.80%	18	7.20%	250
	13.45%		1.04%		14.49%
Other	171	95.00%	9	5.00%	180
	9.91%		0.52%		10.43%
Total	1559	90.37%	166	9.63%	1725
	90.38%		9.62%		100.00%

Chi-square = 601.530, d.f. = 20, prob. = 2.118E-06 <.05 so significantly associated

Source: Primary data

In order to find out association between location and awareness about different general insurance schemes, x^2 test has been applied. It is observed that the calculated value prob.2.118E-06 which is less than .05 at 5% level. Hence there is association between living place and awareness regarding the different general insurance schemes.

V(c) Awareness of Insured and Age

Here attempt is made the age wise awareness about different general insurance schemes and is there any relationship exists between both of them or not.

It is observed from the table that awareness about different general insurance schemes differs from each other age group. The respondents from the age group 31-40 years, whose percentage is 23.20% of total respondent, are more aware regarding all types of schemes and their awareness about health insurance is 29.15% and for motor vehicle it is 30.44%. Next to it, respondents of 41-50 years' age group their awareness for health insurance is 27.75% and their least awareness is for other insurance 23.88%, but more than 60 years' age group are very less aware about health and for motor vehicle insurance also. The same age group maximum awareness for health insurance is 6.28% and lowest awareness is 3.2 for property insurance. It can be inferred that for health and motor vehicle insurance people are aware irrespective of their age but for other schemes irrespective of age awareness is very less.

While applying x^2 test to know about the association of between the age group and awareness the value comes out to be prob.- 3.477E-03 which is less than .05 at 5% level of significance, and the value determines that there is significant association between age group and awareness regarding different general insurance schemes.

Table-3

Age and Awareness about Different General Insurance Schemes

Gen. Ins. Scheme	< 30 Yrs		31 – 40 Yrs		41 – 50 Yrs		51 – 60 Yrs		Above 60 Yrs		Total
Health Insurance	74	21.14%	102	29.15%	97	27.75%	55	15.71%	22	6.28%	350
	4.29%		5.91%		5.62%		3.19%		1.28%		20.29%
Motor Vehicle Insurance	72	21.45%	105	30.44%	94	27.25%	55	15.94%	19	5.50%	345
	4.17%		6.09%		5.45%		3.19%		1.10%		20.00%
Burglary Insurance	73	25.17%	95	32.75%	79	27.24%	31	10.68%	12	4.13%	290
	4.23%		5.51%		4.58%		1.80%		0.70%		16.81%
Fire Insurance	80	25.80%	101	32.58%	83	26.77%	31	10%	15	4.83%	310
	4.64%		5.86%		4.81%		1.80%		0.87%		17.97%
Property Insurance	74	29.60%	85	34%	69	27.6%	14	5.6%	8	3.2%	250
	4.29%		4.93%		4.00%		0.81%		0.46%		14.49%
Other	52	28.88%	68	37.77%	43	23.88%	10	5.56%	7	3.89%	180
	3.01%		3.94%		2.49%		0.58%		0.41%		10.43%
Total	425	24.63%	556	32.23%	465	26.96%	196	11.36%	83	4.81%	1725
	24.64%		32.23%		26.96%		11.36%		4.81%		100.00%

Chi-square = 41.232, d. f. = 20, prob. = 3.477e-03 < .05 so associated. Source: Primary data

V(d) Awareness of Insured and Education

Here an attempt is made to find out the Education-wise difference in awareness about different general insurance schemes and whether any relationship exists between both of them or not.

Above table indicates education wise awareness about different general insurance schemes. From the study it has been observed that post graduate respondents and having professional education respondents are more aware regarding different general insurance schemes starting from health to other type of insurance schemes. But respondents not having any formal education are almost not aware regarding different schemes and their maximum awareness for fire insurance is 4.9% and lowest is 1.74% for motor vehicle insurance. The under graduate respondents are not also more aware regarding different schemes. The reason behind the level of awareness is that post-graduate, graduate and professional people due to their knowledge are more aware but on the other hand, the other education groups not aware due to not having adequate knowledge.

x^2 test reveals that the calculated prob. value is .2009 which is more than the .05 at 20 degree of freedom. Hence there is no significant association among educational qualification and awareness regarding different insurance schemes.

Table-4

Education and Awareness about Different General Insurance Schemes

Gen. Ins. Schemes	Graduate		Graduate		Post graduate		Professional		No. formal edn		Total
Health Insurance	38	10.86	117	33.43	87	24.86	101	28.86	7	2	350
	2.2		6.78		5.04		5.86		0.41		20.29
Motor Vehicle Insurance	34	9.86	120	34.78	83	24.06	102	29.57	6	1.74	345
	1.97		6.96		4.81		5.91		0.35		20
Burglary Insurance	27	9.31	109	37.59	72	24.83	73	25.17	9	3.10	290
	1.57		6.32		4.17		4.23		0.52		16.81
Fire Insurance	29	9.35	111	35.81	78	25.16	79	25.48	13	4.19	310
	1.68		6.43		4.52		4.58		0.75		17.97
Property Insurance	19	7.60	99	39.60	66	26.40	61	24.40	5	2.00	250
	1.1		5.74		3.83		3.54		0.29		14.49
Other	11	6.11	81	45.00	52	28.89	30	16.67	6	3.33	180
	0.64		4.7		3.01		1.74		0.35		10.43
Total	158	9.16	637	36.93	438	25.39	446	25.86	46	2.67	1725
	9.16		36.93		25.39		25.86		2.67		100

Chi-square = 25.013, d.f. = 20, prob. = .2009 > .05 not associated. Source: Primary data

V(e) Awareness of Insured and Occupation

In the below mentioned table (5), attempt has been made to know either any relation exits in between occupation of insured and their awareness about different general insurance schemes.

Table-5

Occupation and Awareness about Different General Insurance Schemes

Gen. Ins. Schemes	GOVT		PRIVATE		BUSINESS		PROF		ANY OTHER		TOTAL
Health Insurance	91	26	87	24.86	76	21.71	92	26.29	4	1.14	350
	5.28		5.04		4.41		5.33		0.23		20.29
Motor Vehicle Insurance	87	25.22	82	23.77	86	24.93	85	24.64	5	1.45	345
	5.04		4.75		4.99		4.93		0.29		20
Burglary Insurance	81	27.93	76	26.21	64	22.07	67	23.10	2	0.69	290
	4.7		4.41		3.71		3.88		0.12		16.81
Fire Insurance	83	26.77	85	27.42	69	22.26	68	21.94	5	1.61	310
	4.81		4.93		4		3.94		0.29		17.97
Property Insurance	63	25.2	72	28.80	58	23.20	52	20.80	5	2.00	250
	3.65		4.17		3.36		3.01		0.29		14.49
Other	52	28.89	41	22.78	43	23.89	41	22.78	3	1.67	180
	3.01		2.38		2.49		2.38		0.17		10.43
Total	457	26.49	443	25.68	396	22.96	405	23.48	24	1.39	1725
	26.49		25.68		22.96		23.48		1.39		100

Chi-square = 9.173, d.f. = 20, prob. = .9808> .05 so not associated. Source: Primary data

The table indicates occupation wise awareness regarding different general insurance schemes. It is inferred from the study that Government employees are more aware regarding different general insurance schemes and their awareness ranges from maximum 28.89% for other category of insurance and minimum 25.2% for property insurance. Next to Govt., professional people are having almost same awareness regarding to different schemes. But on the other hand respondents from any other occupation like daily labor, hawker, and sweeper level have almost nil awareness and their maximum awareness is 2% for property insurance and minimum awareness is 69% for burglary insurance. It can be concluded that Govt. employees and professional people, due to their income, high standard of living, are more aware regarding different schemes of general insurance than other groups.

X^2 test reveals that the calculated value prob. .9808 which is more than .05 at 20 degrees of freedom and 5% level of significance, so that there is no association between occupation and awareness among the respondents about different general insurance schemes.

V(f) Awareness of Insured and Income

In the below mentioned table (6), attempt has been made to know whether any relation exits in between income of insured and their awareness about different general insurance schemes.

It is observed from the table that respondent having income ₹ 20, 000 - 50,000 and more than 50,000 groups are more aware for every type of general insurance schemes. The number of respondent of 20,000 to 50,000 income group is 38% for health insurance, for motor vehicle and burglary insurance it is 40.38% and 37% respectively. It has been observed that the respondents from income group less than 5000, their awareness is comparatively very low to different general insurance schemes. It is observed that only sound income group is aware to health insurance & other insurance.

To know the association between income and awareness about general insurance schemes X^2 test was applied, it reveals that as calculated value prob.=1.106-04 which is less than .05, so there is an association between income of respondents and awareness about different general insurance schemes.

Table-6

Income and Awareness about Different General Insurance Schemes

Gen. Ins. Schemes		< 5000		5000 – 10000		10000 – 20000		20000 – 50000		ABOVE 50000		TOTAL
Health Insurance	HI	12	3.43	55	15.71	160	45.71	72	20.57	51	14.57	350
		0.7		3.19		9.28		4.17		2.96		20.29
Motor Vehicle Insurance	MVI	9	2.61	52	15.07	170	49.28	65	18.84	49	14.20	345
		0.52		3.01		9.86		3.77		2.84		20
Burglary Insurance	BI	8	2.76	30	10.34	157	54.14	58	20.00	37	12.76	290
		0.46		1.74		9.1		3.36		2.14		16.81
Fire Insurance	FI	15	4.84	46	14.84	140	45.16	62	20.00	47	15.16	310
		0.87		2.67		8.12		3.59		2.72		17.97
Property Insurance	PI	10	4.00	48	19.20	97	38.80	49	19.60	46	18.40	250
		0.58		2.78		5.62		2.84		2.67		14.49
Other	Others	16	8.89	38	21.11	54	30.00	32	17.78	40	22.22	180
		0.93		2.2		3.13		1.86		2.32		10.43
Total	Total	70	4.06	269	15.59	778	45.10	338	19.59	270	15.65	1725
		4.06		15.59		45.1		19.59		15.65		100

Chi-square = 52.085, d.f. = 20, prob. = 1.106e-04 < .05 so associated. Source: Primary data

> Rural respondents are less aware regarding different schemes of general insurance and their knowledge is very poor, the insurance companies should encourage them to attend meetings and small events which will increase awareness.

VI: Testing of Hypothesis

The above analysis reveals that out of the six demographic characteristics selected, the respondent's perception on the basis of living place, age, and income are significantly related to their awareness of various general insurance schemes. But the perception of the respondents on the basis of gender, occupation and education are not significantly related to their awareness of various general insurance products. Therefore, the hypothesis No. (2), (3) and (6) does not holds good but the Hypothesis (1), (4) and (5) holds good.

VII: Conclusion

Insurance is a booming industry in India and the insurance sector is having vast potential. As per the data collected from a segment of Odisha's population, it is the need of the hour to create insurance awareness among the local people, especially those at the bottom of the pyramid. As of today the Indian insurance market is a sellers' market rather a buyers' market. The Government and insurance companies should take the initiative to create a huge market through creation of awareness. This need is evident from the Indian insurance penetration and density figures which are too far away from other advanced countries. As per this study as the rural respondents are less aware regarding different schemes of general insurance and their knowledge is very poor, the insurance companies should encourage them to attend meetings and small events which will increase awareness. The uneducated and poor people are to be made aware that to become more effective and efficient and lead a comfortable life, they would need awareness of insurance, specifically general insurance. This study finds that there is an acute need for awareness regarding health insurance, motor vehicle insurance and property insurance which would translate into the safety, security and standard of living of the common man of Odisha, which in turn will increase the economic growth of the State vis-a vis India.

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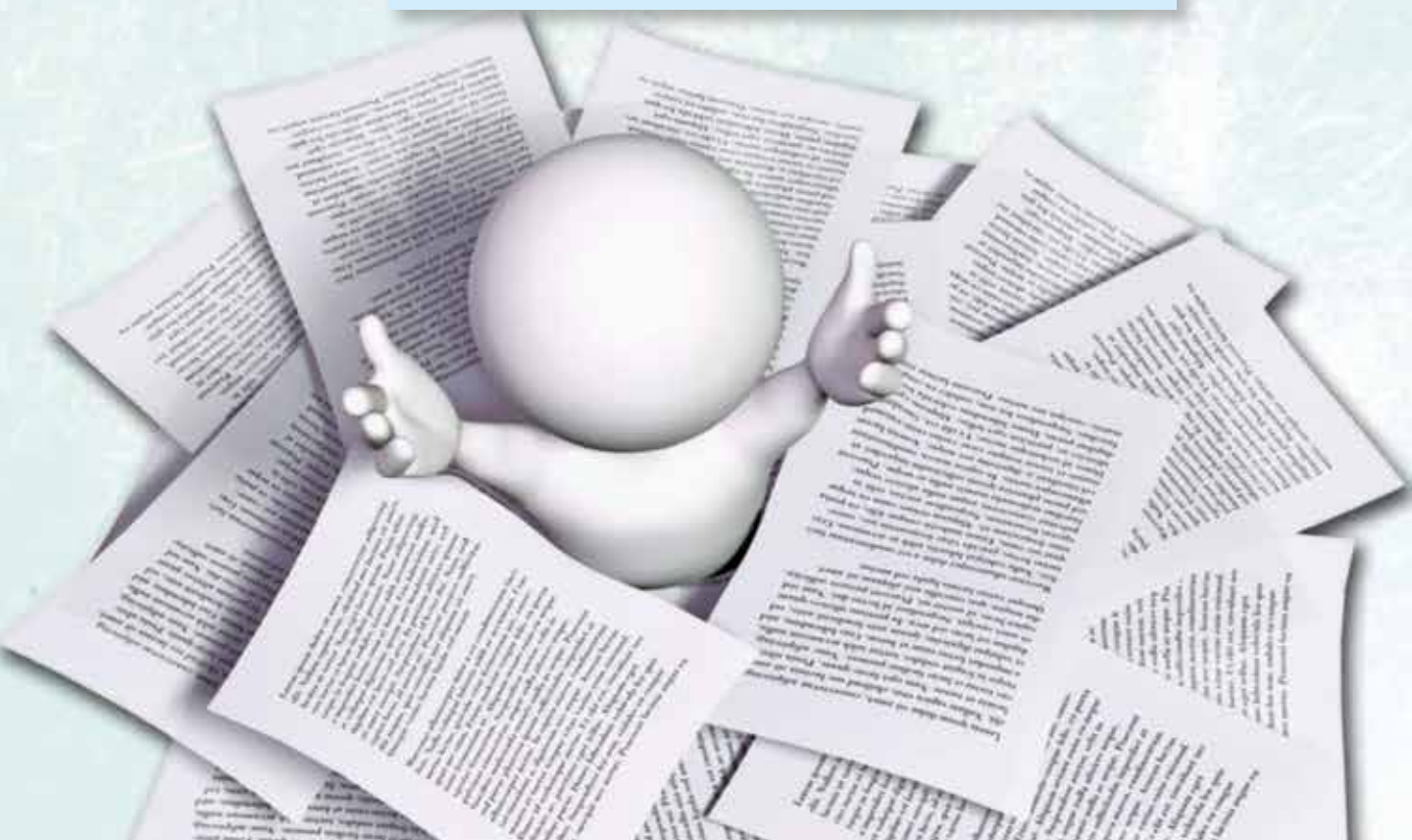

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September 2017							
22	CP	MC2	Handling of Marine Cargo Claims	7-8 Sep 2017	₹ 8600 + S.T.	₹ 6200 + S.T.	Junior & Middle Level Executives from the Insurance Companies, Brokers, Surveyors and Customers purchasing Marine Cargo policies.
23	CP	OE1	Advanced Workshop on Oil and Energy	11-13 Sep 2017	₹ 12900 + S.T.	₹ 9300 + S.T.	Insurance buyers, Risk Managers, Agents, Brokers, Underwriters, Adjusters, Attorneys, and professionals from the oil and gas sectore, drilling contractors/companies and others who must need to understand, mitigate, or insure the complex exposures in the oil and gas business.
24	CP	AI2	Agriculture Insurance	11-12 Sep 2017	₹ 8600 + S.T.	₹ 6200 + S.T.	Professionals in insurance companies and Broking / Surveying areas having 2 years exposure to agriculture or rural insurance.
25	IP	IL1	International Program on Life Insurance	11-16 Sep 2017	US$600	–	Middle Level officials of Life Insurance Companies and Broking firms.
26	CP	PI1	Management of Property Insurance - Fire (Underwriting)	18-19 Sep 2017	₹ 8600 + S.T.	₹ 6200 + S.T.	Middle Level Executives from the underwriting department of Insurance Companies.

SR. NO.	CODE	SUB CODE	PROGRAM	DATE FROM-TO	FEES FOR RESIDENTS	FEES FOR NON-RESIDENTS	DESIGNED FOR
October 2017							
27	CP	RI1	Risk Management and PML - Significance	3-5 Oct 2017	₹ 12900 + S.T.	₹ 9300 + S.T.	Managers working for General Insurance Companies and Brokers.
28	CP	AS1	Actuarial Science for Non-Life Insurance	3-5 Oct 2017	₹ 12900 + S.T.	₹ 9300 + S.T.	Middle Level Executives General Insurance Companies, Professionals from Broking firms, Consultants, III Fellows and those who are pursuing actuarial studies.
29	CP	RT1	Reinsurance Treaty issues and Challenges (Focus - Reinsurance treaty designing)	9-11 Oct 2017	₹ 12900 + S.T.	₹ 9300 + S.T.	Participants are expected to have exposure to Reinsurance related areas in the Insurance domain.
30	CP	BA3	Bancassurance for Life Insurers	9-10 Oct 2017	₹ 8600 + S.T.	₹ 6200 + S.T.	Managers/ Executives dealing with Bancassurance in Life insurance companies and banks.
November 2017							
31	CP	CG2	Compliance Governance and Risk Management in Insurance	30-1 Nov 2017	₹ 12900 + S.T.	₹ 9300 + S.T.	Associate / Fellow members of the Insurance Institute of India and the Institute of Company Secretaries of India.
32	CP	EG1	Engineering Project Claims	6-7 Nov 2017	₹ 8600 + S.T.	₹ 6200 + S.T.	Officials working in property Lines, audit, oversight and fraud control departments, with a basic awareness about Project Insurance.
33	CP	MI3	Motor Insurance (Own Damage) Workshop	6-9 Nov 2017	₹ 17200 + S.T.	₹ 12400 + S.T.	All Levels of Executives from Insurance Companies, Broking firms and Surveyors.
34	CP	YL1	Advanced Program for Young Leaders	13-17 Nov 2017	₹ 21500 + S.T.	₹ 15500 + S.T.	Young Managers / Executives drawn from Life Insurance Companies, who are at the junior management levels.

SR. NO.	CODE	SUB CODE	PROGRAM	DATE FROM-TO	FEES FOR RESIDENTS	FEES FOR NON-RESIDENTS	DESIGNED FOR
35	CP	PI2	Management of Property Insurance - Engineering Project (Underwriting)	20-22 Nov 2017	₹ 12900 + S.T.	₹ 9300 + S.T.	Middle Level Executives from the underwriting department of Insurance Companies.
December 2017							
36	CP	EG2	Engineering Claims (Non-Project)	4-5 Dec 2017	₹ 8600 + S.T.	₹ 6200 + S.T.	Officials working in property Lines, audit, oversight and fraud control departments, with a basic awareness about Engineering Insurance.
37	IP	IG1	International General Insurance Program	4-16 Dec 2016	US$1200	–	Middle level officials of General Insurance Companies or those working for Broking firms.
38	CP	UM1	Underwriting Management	11-12 Dec 2017	₹ 8600 + S.T.	₹ 6200 + S.T.	Underwriting Managers and Executives in Life Insurance Companies.
January 2018							
39	CP	MC3	Marine Cargo Insurance	01 -04 Jan 2018	₹ 17200 + S.T.	₹ 12400 + S.T.	Junior and Middle Level Executives dealing with Marine Cargo from Insurance Companies, Brokers and Surveyors.
40	CP	MI4	Motor Insurance Fraud	08 -09 Jan 2018	₹ 8600 + S.T.	₹ 6200 + S.T.	Insurance officials working in Motor, Audit, Oversight and Fraud control departments with a fair awareness of motor insurance.
41	CP	MR2	Mega Risk Insurance (Project)	15 -16 Jan 2018	₹ 8600 + S.T.	₹ 6200 + S.T.	Middle Level Executives in General Insurance Companies dealing in this line of business and also Surveryors and Loss Adjustors.
42	CP	CL2	Claims Management of Property Insurance	15 -16 Jan 2018	₹ 8600 + S.T.	₹ 6200 + S.T.	Middle Level Executives of General Insurance Companies.

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