

## **Effectiveness of Big Data for sustainable growth and development of Insurance Sector – a conceptual study**

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### **Abstract**

Sustainable growth and development has become the buzz word in the business world. Firms over the globe are developing innovative strategies to sustain in the competitive environment. Technological advancement and information technology has paved the way for developing competitive edge. In the recent years big data is becoming core for almost all the industries including insurance industry. *Big data* allow companies to collect billions of real-time data points on its products, resources, or customers. Liberalization of insurance industry has brought transformational changes since 2000. The industry has made sustainable development with moderation growth and intensifying competition by offering customized innovative products, thanks to the regulatory environment that created a path breaking impact on the growth and development of industry. Use of Big data help insurance companies to integrate and analyze a large volume and variety of data, from call-center notes and voice recordings to web chats, telematics and social media. further it has created an avenue for the insurance companies to design products, assess risks, set policy rates, protect against fraud, ensure sufficient reserves, and retain customers and producers, insurance companies collect extensive data on claims, transactions, demographics, channel usage and more. With intense competition and changing needs and wants of the consumers companies are using big data to store customer information. in this paper an attempt is made to identify the effectiveness of using big data in insurance industry, further an attempt is also made to analyze how big data contributes for sustainable growth and development of insurance industry. The study is conceptual in nature and involves secondary data.

**Key Words-** Sustainable development, competition, Big Data, Information technology, Insurance companies, analytics

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### **1. Introduction**

India's life insurance sector is the biggest in the world providing more than 36 crore policies and is expected to increase at a compound annual growth rate (CAGR) of 12-15 per cent over the next five years. The sector has 52 insurance companies, of which 28 are in non-life insurance business and 24 in life insurance. The insurance industry plans to hike penetration levels to five per cent by 2020, and could top the US\$ 1 trillion mark in the next seven years. The total market size of India's insurance sector is projected to touch US\$ 350-400 billion by 2020 from US\$ 66.4 billion in FY13. The industry is able to stride due to Demographic factors such as growing middle class, young insurable population and growing awareness of the need for protection and retirement planning contributes for growth of insurance sector. With wide customer base and operations network trillion of data is generated. Huge amount of data have become a torrent flowing into every area and the amount of data in the world has been exploding. Companies capture trillions of bytes of information

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about their customers, suppliers, and operations, and millions of networked sensors are being embedded in the physical world in devices such as mobile phones and automobiles, sensing, creating, and communicating data. Multimedia and individuals with smartphones and on social network sites will continue to fuel exponential growth. Data has always been the core of the insurance industry. Effective use of big data helps insurance companies to identify the next best action for customers.

**Big data**

Big Data refers to technologies and initiatives that involve data that is too diverse, fast-changing or massive for conventional technologies, skills and infra-structure to address efficiently. Big data” refers to datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyze. The ability to process and analyze large amounts of varied data and data sources together to generate actionable business insights is known as “big data” big data is a collection of data sets so large and complex that it becomes difficult to process using on-hand database management tools or traditional data processing applications. The challenges include capture, curation, storage, search, sharing, transfer, analysis, and visualization. Big Data is the foundation for creating new levels of business value. With integrated storage, analytics, and applications, Big Data helps drive efficiency, quality, and personalized products and services, producing higher levels of customer satisfaction and experience.

Big data involves large pools of data that can be captured, communicated, aggregated, stored, and analyzed. The business of insurance is based on analyzing data to understand and evaluate risks. More recently, the information age has introduced new technologies that can be applied in data analysis, giving insurers new strategic and operational insights into their businesses. Insurance organizations are already inundated with data, and the volumes are growing rapidly due to telematics, social media, and data from other unstructured sources. Today, Big Data technologies such as Hadoop are taking the business world by storm, introducing new approaches to rapidly analyzing large amounts of data from many sources. Big Data is often defined as the volume, variety, and velocity of data that exceeds an organization’s ability to manage and analyze it in a timely fashion. But the true value of Big Data is realized when it can be harvested for fast, fact-based decisions that lead to great business results. A paradigm shift is now underway, with leading insurers adopting a “management by analytics” approach to running the business. This shift, fueled by Big Data and high performance analytics, is enabling insurers to select more profitable business, implement more precise pricing, manage the risk portfolio holistically, improve fraud detection, and increase investment returns. High performance analytics is an area where a strong alignment between business and IT can create powerful new capabilities within an insurer’s organization – robust capabilities that set the stage for true differentiation.

Since Insurance markets over the globe are showing clear signs of expansion, requiring insurers to be innovative in their approach towards achievement of sustainable growth. Big data is becoming the buzz word even for the insurance industry to develop a competitive edge over their rivals. Big data helps insurers to identify new growth opportunities, launch innovative products and retain the customer’s insurers are gradually recognizing the importance of big data to build their future strategies and overall competitiveness.

**Benefits of Big data**

Big data can unlock significant value by making information transparent and usable at much higher frequency. Since organizations create and store more transactional data in digital form, they can collect more accurate and detailed performance information on everything from product inventories to sick days, and exposes variability and boost performance.

Big data allows ever-narrower segmentation of customers and customized products and services. Finally, big data can be used to improve the development of the next generation of products and services and create innovative after-sales service offerings such as proactive maintenance (preventive measures that take place before a failure occurs or is even noticed).

Big data helps companies to forecast, collect and analyze data to conduct controlled experiments and make better management decisions.

## **2. Review of Literature**

Puneet Bharal, ACORD and Amir Halfon, in their study *Making Sense of Big Data in Insurance* (2013) states that The insurance industry has been struggling to get a good handle on its data for decades, both on the transactional and the risk management sides. And the recent emphasis on utilizing new sources of data that extend beyond traditional sources, often referred to as Big Data, has created renewed interest in data management across the industry. Data variety and diversity in particular are pushing the traditional, RDBMS technologies to their limits, and are raising more and more interest in new approaches to data management.

White paper *Capitalizing on Big Data Analytics for the Insurance Industry* (2012) highlights that applications of big data can provide information to enhance sales, marketing, and underwriting; operational activities that reduce costs; and strategies to better understand and reduce risk.

report released by PricewaterhouseCoopers L.L.P. The report, "The Insurance Industry in 2012," says insurers using big data can improve their overall performance by facilitating greater pricing accuracy, deeper relationships with customers, and more effective and efficient loss prevention.

Richard Clarke and Ari Libarikian 2014 *Unleashing the value of advanced analytics in insurance* states that revolutionary advances in computing technology and the explosion of new digital data sources have expanded and reinvented the core disciplines of insurers. Today's advanced analytics in insurance push far beyond the boundaries of traditional actuarial science.

## **3. Statement of problem**

Insurance industry is a sun rise industry with life insurance the world largest sector with more than 36 crore policies; the sector has created mile stone in other areas of insurance such as life and non-life insurance. Since Insurance sector is making a remarkable stride over the globe showing clear signs of expansion, requiring insurers to be innovative in their approach towards achievement of sustainable growth by offering tailor made products and services to meet the expectation of the customers. as the customer base is widening with large network operations, claims, frauds and actuaries etc there is imperative need for insurance industry to use big data.

## **4. Objectives of the study.**

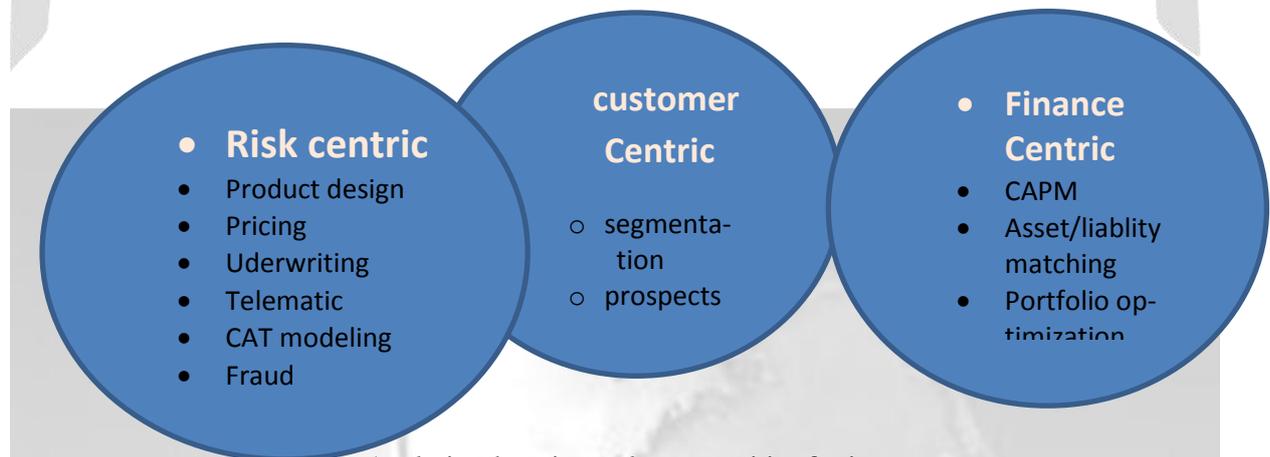
- 1) To analyze the use of Big Data for enhancing Business Capabilities of Insurers
- 2) To evaluate the effectiveness of big data in mitigating claims and frauds in insurance
- 3) To identify the importance of big data for developing innovative and customized products and services.
- 4) To study the impact of big data on insurance.

## **5. Methodology**

The study is based in secondary sources. Data required for the study is collected from the reports of Mc Kinsey and Boston consulting group, besides data is also collected for the newspaper, journals and magazines and browsing various websites.

## 6. Analysis of data

Insurers actively pursue analytics initiatives in three key areas: customer centric, risk-centric, and finance-centric activities. The major areas where big data can be used by the insurance sector include, customer centric, risk centric, finance centric Figure 1 identifies a number of important areas where analytics are already being applied by leading insurers. Many of these areas have significant potential to create an even larger business impact through the use of high performance analytic.

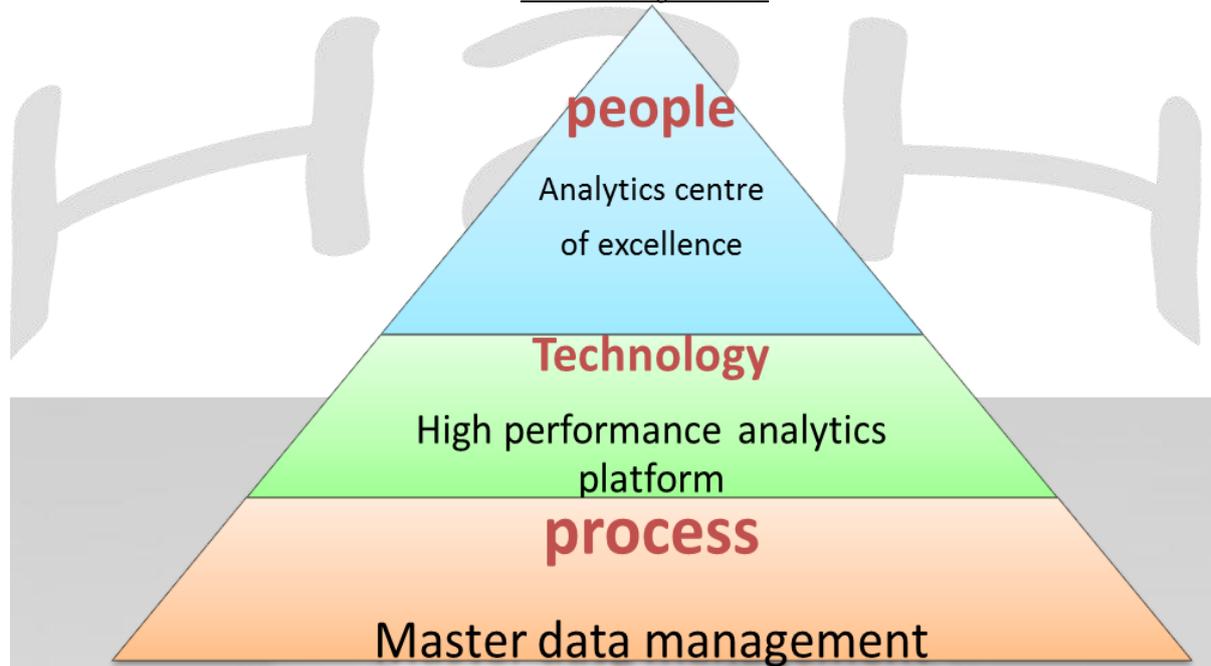


### Customer centric analytics

though insurers have been using software tools to assist in segmenting markets, identifying prospects, measuring campaign effectiveness, and spotting cross-selling opportunities. However, analytics helps insurers to focus on the customer, instead of focusing on products and internal operations, in an endeavor to do so insurers need to cast a wider net to gather new types of information that is relevant to customers, including information from social media sites and external data on demographics and location-based perils.

### Finance centric analytics

Efficient capital allocation and optimum investment returns are critical to an insurer's financial performance. Insurers frequently use custom-built approaches to augment financial management, using capital asset pricing models (CAPM) to value and manage assets for least risk and maximum return. Insurers must develop three technology related capabilities in order to capitalize on high performance analytics (shown in Figure 2): master data management (process), the platform (technology), and an analytics center of excellence (people).



#### Capabilities Required for High Performance Analytics

##### **Master Data management**

Master data management makes insurers take center stage in the management of an insurance company, the quality, consistency, and breadth of the data become important. Data is seen as the valuable corporate asset supported by comprehensive master data management (MDM). Good MDM consists of processes and tools to manage enterprise data, such that a high quality, consistent, and authoritative source of data exists. While MDM can be applied at the business unit level, the maximum benefit is gained when MDM is applied across the enterprise.

##### **Impact of Big Data on Insurance Sector**

The revolutionary impact of big data on insurers involves the fundamental redesign of selected steps in the insurance value chain. Indeed, in. Big data enable insurers to identify shifting customer demand, change products and services within days, learn continually from vast amounts of internal and external customer information, and even create products that adapt to individuals' risk exposure in real time. big data bring improvements to areas of the insurance value chain, big data helps insurers to access high volumes of previously untapped information especially unstructured internal and external data and leverage a higher degree of computing power and sophisticated algorithms to find patterns and customer information that insurers can act on in a highly targeted, timely way.

Big data helps insurers insurer is to make the fullest use of both internal and external data related to historical claims and fraud patterns, accidents, social networks, medical and criminal records (where available and accessible) in order to identify dubious claims.

Big data helps in setting claims Mitigation and Prevention through data points from historical claims, medical bills and insurance, treatment records, employer information on the claimant, and even social-media activities, insurers can detect incident patterns that reveal typical follow-up costs for similar claims.

Using big-data analysis, companies can also use location and movement information and even weather data to calculate a highly accurate risk profile. The key is that insurers can deliver highly individualized, segment-of-one offers

Apart from the above big data has high relevance to Insurance industry and has high ROI potential in the areas of -

- Fraud Detection & Analysis
- Personalized Pricing:
- Customer Sentiment Analysis
- Catastrophic Planning
- Call Detail Record
- Loyalty Management
- Social Media Analytics
- Advertising and Campaign Management
- Agents Analysis
- Customer Value Management
- Underwriting and Loss modeling.

## 7. Suggestions

### Keys to Successful Implementation of Big Data in insurance sector-

In an endeavor to successfully implement Big Data in insurance sector insurers should pay attention to four key success factors.

**Create the right entrepreneurial environment.** Insurers need to create an innovative, risk-friendly big-data ambience separate from the traditional business organization and its governance. That helps insurers foster much-needed Greenfield approach for developing, testing, and implementing solutions.

**Redesign processes and the organization.** Successful use of big data requires insurers to take action so that not only IT processes but also Business Intelligence processes and the overall Business Intelligence organization are redesigned and adapted. Insurers should create a dedicated team for data analytics and data management team

**Expand knowledge base.** Since the big-data approach is not traditional Business Intelligence, many insurers do not yet have the critical analytical skills that are required for its implementation. Rather than attempt an internal, low-key solution, insurers should partner with external entities to expand their knowledge base and develop the resources and expertise they need sooner rather than later.

**Leverage internal data to the fullest.** Insurers should not consider big data as being applicable only to external data sets; they need to fully leverage insights from internally available unstructured data instead of focusing too much on external sources.

### Devising a Plan of Action

The insurers need to devise an action plan to make use big Data potential to be a game changer in the insurance industry.

## 8. Conclusions

Big data has created an opportunity for insurers to find new insights and improve their business processes. effective use of big data create an avenue for the insurers to manage their data efficiently and reap the benefits of developing innovative strategies for designing products that meets the need and wants of the customers. Further mitigation of claims and fraud detection make insurance companies manage its operations efficiently that can also contributes for sustainable growth and development of insurance sector for gaining competitive advantage. Insurers need to be prepared for the changes that big data will bring to their industry. They should experiment, explore, test, analyze, innovate, and adapt and upgrade their capabilities in t highly dynamic and competitive environment.

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