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WHITE PAPER

Big Data in insurance

Big Data in insurance: Big question, big confusion, big decision and big results?

"Big Data" is the buzz word today. Enterprises across industries are observing the market move in this area. For the industry pioneers like Google, Amazon and Yahoo, use of Big Data is a Business As Usual (BAU) item. For many other industry players however, Big Data has emerged as a hot topic to explore, experiment and evolve with.

While Big Data is gaining momentum across industries, many industry players are wondering what has changed dramatically that necessitates its adoption. The common question includes: is Big Data just IT hype? Or is it really a change agent? Does my enterprise need this stuff? Is it all about acquiring new data capability? What is the impact in case I delay or ignore the topic?

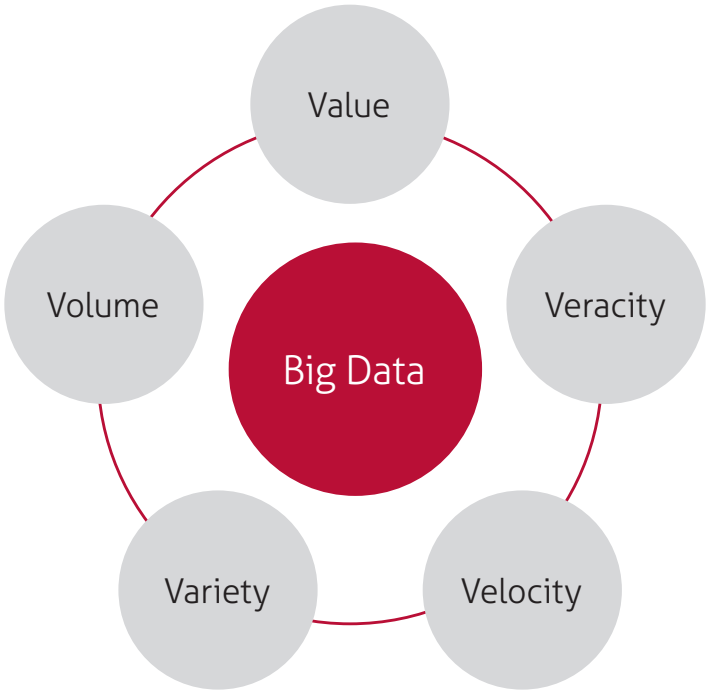
The insurance industry is no exception in the Big Data race and is moving cautiously towards adopting the Big Data theme. The concept of Big Data took some time to be commonly understood because of its big definition. Based on our research, we advocate the following five V's of Big Data:

- Volume
- Variety
- Velocity
- Veracity
- Value

Evaluating your Big Data needs based on the five V's gives a holistic view for better decision making. They are explained below.

Volume: This relates to increase in the data size. Many of us have been dealing with data volume in the range of Gigabyte to Terabyte so far. But with Big Data, we are preparing for Petabyte, Exabyte, Zettabytes, Yottabyte, Brontobyte and beyond. The question is, are you expecting such levels of data growth in the future for your enterprise? If no, then you can take a wait and watch approach.

Variety: It comprises of structured, semi-structured and unstructured data. In the era of social media, mobility and sensing devices, the use of unstructured data is growing exponentially. Managing diverse forms of unstructured data is the key aspect in Big Data. Are you expecting a surge in the usage of unstructured data (e.g. data originating from social platforms, mobility, telematics or other sensing devices) that can impact your core business processes, decision making and analysis? If yes, then you need to assess your existing data infrastructure and architecture for fitment towards managing data streams, types and varieties in conjunctions with data volume. If you feel your infrastructure is inflexible, you need to prepare for building a Big Data platform in order to face your future needs.



Big Data: five V's assessment framework

Velocity: This relates to speed with which data is being processed. We are talking of seconds to milliseconds based processing and analysis of millions of records. It is about real-time or near real-time computation for complex data types and high data volume. Speed is a key for real-time computation, in-memory processing and real-time analytics. Are your business stakeholders complaining of turnaround time or any delay within the business operations? Do you have immediate plans to use data from social, telematics and other sensing methods for your business? If your answer to any one of these is positive then it is the right opportunity to start planning your Big Data initiatives.

Veracity: This relates to reliability and accuracy of data. The above parameters (volume, variety and velocity) are of little value if data is not reliable. Veracity is one of the key aspects of data quality and it supersedes other three V's such as volume, variety and velocity. The enterprise needs to first fix the veracity issues before sailing the Big Data boat. If you have adequate procedures and policies for managing data quality with defined ownership and governance framework, you have an advantage in adopting the Big Data theme.

Value: This is the most significant element of Big Data. Without significant value for buyers and consumers, Big Data remains just a mere promise. The enterprise needs to be very clear on the value proposition to the end customers. Otherwise it may not be a fruitful investment. Few questions that insurers must ask themselves while adopting Big Data include: What is its use / utility for the end buyers? Have you identified customer segment(s) that will benefit from it? Have you put a clear plan for at least a year from now and identified the business areas that will leverage Big Data? Do you have adequate expertise in-house to run Big Data projects? Have you evaluated your competition's move in this area or are you planning to be a pioneer in your segment? Do you have business case(s) to execute a few Proof Of Concepts (POCs) in this area? Have you done your infrastructure assessment to evaluate the impact of Big Data on your existing infrastructure and the investment required for it? The more positive responses you have to these questions, the stronger is your case to invest in Big Data.

Move with caution

Big Data is a disruptive technology. Thus a big bang approach while adopting it is going to be risky for insurers. If you "exclude" social media data and sensing devices data, many insurers would notice that they pretty much manage all the five V's of Big Data covered above in some or the other form. Does it mean insurance enterprises just need to manage newer channels effectively and integrate them into their core business processes to accomplish Big Data challenges? The answer to some extent is "yes". But it is not as simple as the analogy used here. The existing infrastructure, architecture and IT systems of many insurance enterprises are not flexible and scalable enough to support the volume and unstructured nature of data that gets originated from social media and other sensing devices. For example, Twitter (one of the social channels) alone generates about 12 Terabytes of data daily which is a good enough challenge for IT systems of any insurance enterprise for an accumulated year. The question is not about managing data challenges, data capabilities and other data parameters, it is about understanding impact and risks of exponentially growing data on your business and handling it proactively with the use of technology.

Insurers need not "revamp" their IT estate just because Big Data is based on newer architecture and frameworks which are more promising and leverages newer tool-sets. The best option for insurers is to deploy Big Data centric changes on the periphery of core insurance systems. After all, no one would appreciate extreme changes to core processing systems that are a backbone to the business. In case an insurer is planning to redesign and transform its IT estate in the near future, Big Data offers a strong foundation and a great opportunity to start with. Larger insurance players will find it more challenging to adopt Big Data primarily because of the numerous legacy systems in use. The early adopters would include small to mid-size insurance players who are relatively less burdened with legacy and can afford dramatic changes to their core systems. Big Data is still evolving and we expect it to be in the limelight for at least the next three to five years. Insurers must move cautiously while adopting it as it will continue to exist till it moves mainstream.

Big Data insurance value chain impact

It is unlikely that Big Data alone will ever become a top business priority for insurers. Like other technologies, it will continue to be an enabler for businesses. It can however influence each and every part of the insurance value chain and will offer newer insights (leveraging social, telematics, sensing and other evolving methods and channels) to businesses at a swift speed. Big Data can help significantly in understanding customer preferences and concerns to help insurers devise newer products and refine existing service levels to stay competitive and profitable.

Insurers must start with customer analysis as the first milestone or Proof of Concept (PoC). This will help them assess if they are getting any meaningful insights or value that went undiscovered in the past while leveraging Big Data. They can then gradually expand it to other parts of the insurance value chain based on results. It is like any new technology adoption that can wait till you see the significant result. Brand analysis, campaign, sentiment analysis, fraud detection, customer churn analysis are some of the other use cases that can be time tested for speed and accuracy of Big Data using higher data volume and unstructured contents together.

Resourcing requirements

The insurance industry is undoubtedly a data centric industry and uses data heavily across the value chain right from product design, product promotions, underwriting, pricing, claim settlement, billing, compliance management and beyond. However data alone has not helped the industry. The focus has shifted to intelligence and insights derivation from the data for effective decision making. While "Information Management" and "Information Analytics" have picked up momentum since the last decade, enterprises have started focusing on data mining, data analytics, predictive modeling and other advanced business intelligence techniques. Information analytics is a key ingredient for Big Data and you need a good team of data experts, data scientists, statisticians, business experts, IT architects and IT experts for analyzing the complexities that comes along with the five V's of Big Data.

Big Data and BI

Big Data is a disruptive technology and it comes with various risks and opportunities. Big Data technology is still evolving and there are just a handful of insurance players globally who are experimenting with and practicing it. Telematics was one of the early driving forces for the insurance industry making insurers think of rapid volume growth for data. Hadoop and MapReduce technologies have emerged as strong storage and processing platforms to support large volume and variety in data. Analytics and business intelligence have always been in the race since the last decade to help extract meaningful insights from the data ranging from static analysis to advanced predictive analytics. The Big Data subject is incomplete if it is not coupled with analytics and business intelligence.

Conclusion

Insurance players need to assess the five V's of Big Data carefully. It will take at least two to three years for Big Data to move into mainstream. This is the right time for insurance enterprises to start building the foundation for Big Data and build capabilities within the enterprise. Social media and telematics are going to play key roles in marketing, product design, pricing, policy purchase, brand positioning, sentiment analysis and servicing in the future and will put a lot of pressure on CIOs to expand and modernize their IT architecture to support Big Data. Big Data is bound to deliver big results in the future and will definitely offer competitive advantage to insurers of all sizes. The enterprise's commitment for Big Data and synergies of departments (marketing, actuarial, underwriting claims, IT) will decide the end result and future of the insurers.

About the author:
Girish Joshi is a Program Director and Head of Insurance CoE at Mindtree Ltd. He has over 15 years of experience in business and IT strategy, consulting, solutioning and leadership. He has worked across the insurance value chain for leading clients in North America and Europe. He is responsible for insurance strategy, solutioning and domain development in Mindtree. He can be reached at girish_joshi@mindtree.com