Point of View

Next-Gen Analytics In Insurance

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Introduction

Insurance has always been a data-driven industry. But over the past decade, the technology to use data has changed rapidly. What started as small, isolated experiments on limited data sets a few years ago have snowballed into enterprise-wide strategic data initiatives. Companies have seen early successes and hence are set to undertake more extensive and complex projects that need sophisticated technology.

A thriving technology start-up ecosystem has ably supported this shift. InsureTechs are working with insurance companies of varying sizes and offerings and ushering them into the age of modern insurance, e.g., Digital Fineprint works with MetLife and Allianz to provide them with a SaaS platform insurance intelligence solution that uses data analytics and AI to identify the risks faced by SME business owners and help insurers design products and solutions to cover those risks.

Technology companies are coming up with newer and more sophisticated ways of accumulating and leveraging data. This will drive even more rapid evolution in this field. In recent years, analytics has branched out into several different directions, each having its own significance.

Data Mining	Neural Networks	Predictive Analytics	Edge Computing	Continuous Intelligence
Involves providing raw data which is used as an input for the various analytics solution stages — Descriptive, Predictive, and Prescriptive Analytics.	A series of algorithms that aim to recognize underlying relationships, in a set of data, through a process that mimics the way the human brain operates.	A form of data-mining technology that works by analyzing historical and current data and generating a model to help predict future outcomes.	Edge Computing is an IT deployment designed to put applications and data as close as possible to the users or 'things' that need them.	A design pattern in which real-time analytics are integrated into business operations; processing current and historical data to prescribe actions in response to business events.
Applications in Insurance				
Risk discovery from books of business.	Prediction of claims reserves.	Assessment and underwriting of cyber insurance products.	Risk avoidance and claims reduction.	Real-time weather alerts to customers for loss reduction.

The use cases of each of these technologies are seemingly endless. Many insurance companies use advanced analytics to forecast evolving needs accurately, mitigate risk in advance, provide customized coverages, and fight fraudulent claims. This has been helping them bring in operational efficiencies and reduce their expenses in key areas like underwriting and claims.

This Point-of-View document (PoV) attempts to look at how this powerful technology is likely to be adopted in the next few years:

How Insurers Can Leverage Advanced Analytics:

1. Analysis of real-time data for climate disasters using Continuous Intelligence (CI)

Climate disasters have been a leading cause of considerable losses in recent times. According to Munich Re, in 2021, natural disasters inflicted an astounding overall loss of $280 billion, of which roughly $120 billion was insured. Therefore, reducing these losses is a priority for most insurers, and they are looking at advanced analytics to achieve this.

Many insurance companies are already analyzing geo-spatial and satellite data. They could further improve the result of this effort by leveraging Continuous Intelligence to fine-tune their analysis and get accurate real-time information. By combining existing data with streaming real-time information and analyzing it, insurers can provide timely and accurate alerts to customers about impending events such as floods, hail, etc., and reduce claims.

For example, in a hailstorm, an auto insurer could use a Continuous Intelligence-based application to analyze the existing geospatial data along with continuously streaming satellite weather reports. The insurer can map this information to available customer geographical location data and send real-time alerts to their customers and guidelines to move their cars indoors based on the live location of the storm. This could reduce or even eliminate claims 100% in some cases.

2. Predictive Analytics for assessment and underwriting of cyber insurance products

Cyber-attacks can bring a business down to its knees, forcing it to incur huge losses by taking away its ability to conduct business. This has given rise to cyber insurance. Insurance companies realize the potential for growth in this line of business. They are trying to reach more businesses with cyber coverage but doing so requires data and analytics. With this type of insurance having been barely tested, such information is challenging to come by. To add to complexity, cyber risk is a rapidly growing and changing threat.

> There was a staggering **100%** increase in cybercrime complaints between March 2020 and May 2021 – with over **$4.2bn** being lost to cybercriminals globally.
>
> **- FBI**

This need has spawned a whole industry aiming to assist insurers in gaining insights into the level of risk a company has and ultimately give them the means to underwrite policies.

Several start-ups, such as Arceo, Cytegic, Cyence, etc., have mushroomed that provide both providers and brokers with a set of tools that they can use to price risk and give their customers the knowledge to reduce it. Such platforms enable data analytics on internal cyber security systems within a business to be compared with the latest information on the threat landscape to establish where the gaps in coverage are, allowing insurance customers to manage it better or insure it.

Some others give insurers an overview of their aggregation risk — the financial hit they would incur if an attack caused a sudden spurt in claims. Some organizations also provide a platform which insurers can use to model an attack scenario on a company, gaining insight into the impact a cyber-attack might have on the organization.

3. Use of Text Mining for risk discovery from the book of business

While many companies have made substantial progress in digitizing their documentation, they still do not have a mechanism to automatically 'read' these documents and provide them with useful information on querying them. As a result, companies still must spend a lot of manual effort on data extraction and, therefore, have not been able to see tangible results from their digitization efforts. Text Mining can be a beneficial solution in such scenarios.

Suppose an insurer wants to understand the amount of exposure they have related to asbestos. In that case, they will want to know how many of their policies do not have an asbestos exclusion across their book of business. Without technology, they would have to open all their scanned documents manually, check each one of them and ensure that they have identified them without any error. This process would consume large amounts of time and workforce (which could have been utilized more effectively somewhere else) and still place accuracy at risk.

With text mining, the task can be automated. Each document would be 'electronically read' for text data matches compared to an algorithmic library, and the company would have its answers quickly and accurately.

4. Use of Neural Networks to predict claims amounts/reserves

Claims reserving is an essential function of the insurance business. It entails estimating the amount required to cover future payments for claims that have already occurred. Traditionally, these claims reserves are calculated using aggregate data. While working with aggregate data simplifies calculations, it also leads to a considerable loss of information. Using individual claims data can improve the accuracy of claims reserving. Therefore, developing new claims reserving techniques that use individual claims data have become increasingly popular in actuarial science.

Neural Networks can leverage complex statistical models and existing policy data to predict their settlement processes and the distribution of claims over a period. This technology is especially promising in this application as it works well with granular data. Thus, the industry is looking at leveraging Neural Networks to help predict the costs for such claims and enable

insurers to create more accurate reserves. This would help them serve their customers better when most needed while still ensuring that insurers make the optimum investment income.

This will be very helpful in cases such as damage to property due to natural disasters or health insurance where there could be a wide gap between the specifications of the customer and the actual amount of their future claim.

5. Use of Edge Analytics for risk avoidance and claim reduction

Cloud computing requires a large amount of data to be stored in massive servers remotely. To access this cloud data, it must be accessed, processed, and analyzed before being returned for purpose. This creates three main issues: latency, security, and bandwidth. Therefore, there has been an increasing need for Edge Computing. At its core, Edge Computing is an IT deployment designed to put applications and data as close as possible to the users or 'things' that need them. Thus, analytics is localized and only select data is sent back to the cloud.

For example, in-home insurance, with IoT devices, customers' homes can provide data, which can be leveraged to calculate risk more comprehensively. At the same time, intelligent security and sensors can be used preventatively inside the homes, which would send alerts to both - homeowners and their insurers when something isn't right. Flood damage is one of the leading causes of home insurance claims and the perfect example of this.

Apart from this, Edge Computing will also be helpful in other areas such as:

- Leak sensors deployed near potential leak areas like boilers, sinks, and washing machines can send notifications to avoid damaging events.
- If a pipe bursts when no one is home, the sensor can command a smart valve to shut the water off, minimizing damage, notifying the customer, and minimizing the claim.
- The insurance industry will be able to offer better deals and new types of policies driven by the intelligence embedded in the insured assets.
- The health industry will be able to provide preventative care supported by intelligent wearables monitoring everything from activity to blood sugar levels.

> IDC predicts that by 2025 there will be 55.7 Bn connected devices worldwide, 75% of which will be connected to an IoT platform and the data from these is estimated to be **73.1 ZB by 2025**, growing from 18.3 ZB in 2019.

With such an exponential rise expected in data and the incoming 5G network, Edge Computing has plenty of scope.

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How Should Insurance Companies Prepare to Leverage the Potential of Advanced Analytics?

Reaping the maximum benefits of Advanced Analytics comes down to a few basic things:

1) Understanding new technologies and their abilities

As mentioned earlier, business leaders are warming up to the idea of Advanced Analytics and what it can do for them. However, they need to understand both business and technology to be discerning about adopting only that technology which suits their long-term business goals and strategies.

2) Mobilizing as much data as possible

The success of any analytics-based solution depends heavily on the volume and quality of the available data. Therefore, it is vital that insurance companies identify, collect, and organize as much data as possible. This data could be internal data collected by them over the years or data acquired from third-party resources, or a combination of the two. The goal, however, should be to create coherent data as the quality of data will have a direct impact on the accuracy of the output of the solution.

3) Building the technology infrastructure to derive insights from the collected data

This includes building/procuring a cost-effective analytics-based solution which will be compatible with their existing technology landscape and provide actionable insights and learn and improve over time. This can be tackled easily with the help of technology service providers and InsureTechs that are developing such solutions faster than insurance companies can adopt them.

4) Invest in talent

Apart from the technology and the data, insurance companies also need to invest in identifying, hiring, and grooming the right talent, which will play a significant role in the execution and effective use of their analytics strategies.

Conclusion

Although a lot has been said and written about advanced analytics for years, the actual adoption is still low. The rate of innovation in insurance analytics may outpace the rate of change for P&C insurers. Therefore, insurance companies still have a lot of ground to cover in fully harnessing the capability of advanced analytics. But it is never too late. Through creative and considered application of Advanced Analytics to different areas of business, even late adopters can gain a solid competitive edge.

Eventually, winners in analytics-based insurance will be companies that use technology in a business-centric and focused manner to improve their underwriting capabilities, create innovative products, find, and leverage new data sources, create more customized products, and have a simple but effective strategy around Advanced Analytics, which will help improve their top and bottom lines.

About the Author:

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