Artificial Intelligence in Insurance
The insurance industry is unique. Yes, we say that because it is probably the only industry where the customers wish to know the price of the product before the actual costs are known. From early days of the industry, it has always been about data, analytics and finer details. In this whitepaper, we shall talk about the insurance industry and its journey that has advanced over the years, and continues to evolve in the days to come.
The above image clearly indicates the various elements that impact the Insurance industry today. Which means, it is time we address the key challenges that insurers face,

- Tapping into the potential customers at the right time.
- Providing the right set of products/services that meets customer requirements.
- Promising hassle-free claim support to customers & a seamless path to purchase journey.

**AI & Its Impact**

The insurance market today is a mix of these elements - increased competitions, disrupted marketplaces, cumbersome claims processing and frauds with high levels of customer expectations and stringent regulations. Insurance business owners and insurers therefore are forced to explore new venues to use technologies including AI and ML to maintain their market position, beat the competition, boost operations and enhance customer satisfaction.

Today, AI is utilized across industries- Banking, finance, healthcare, education, e-commerce and just about every other industry. Most companies have adopted AI tools to streamline their business operations, optimize resources, and increase efficiency & accuracy, while saving operational cost and being profitable as well. Take a look at how the use of AI has grown over the years.

**2019 AI Applications in Use Percentage (%) of respondents**

- **Chatbots**: 26%
- **Process optimization**: 26%
- **Fraud analysis on transactional data**: 21%
- **Market/customer segmentation**: 15%
- **Computer assisted diagnostics**: 14%
- **Call Center virtual customer assistants**: 12%
- **Sentiment analysis or other opinion-mining analysis**: 12%
- **Face detection/recognition**: 11%
- **HR applications such as resume screening**: 10%
- **Virtual personal assistants**: 08%
- **Smart robotics (Automated warehousing/manufacturing)**: 08%
- **Anomaly or fraud detection on IoT data**: 07%
- **Other**: 05%
- **Self-driving vehicles**: 03%
Several AI-related technologies, such as robotics, machine learning, natural language processing (NLP), and speech recognition tools have progressed substantially over the years to coalesce into existing systems that do, learn, think and constantly adapt to changing environments and its complexities.

McKinsey estimates AI techniques have the potential to create between $3.5T and $5.8T in value annually across nine business functions in 19 industries.

2018 AI Applications in Use

None of the above: 72
Fraud analysis on transactional data: 09
Marketing department customer segmentation: 09
Sentiment analysis or other opinion-mining analysis: 04
Call center virtual customer assistants: 04
HR applications such as resume screening: 09
Anomaly or fraud detection on IoT data: 02
Virtual personal assistants: 01
Other: 03

Impact of AI in Insurance

Insurance companies are looking to leverage on AI to solve business challenges with better underwriting and loss prevention, sales, fraud detection, product pricing, claims handling, and customer experience. Adoption of AI has been slow but definitely here to stay. There are several processes that could be transformed with AI and over time more insurance providers are likely to implement this technology into their business.

"Insurers with AI capabilities can position themselves to handle market challenges better than their competitors in the ever-changing insurance business."

Source: https://medium.com/datadriveninvestor/ai-in-insurance-industry-be2e4ac69c1f2
AI has the potential to alter the way business are done through the following:

**Speed**

By adopting Robotic Process Automation (RPA), which includes AI, ML, VR and other tools, the company can reduce the money spent on hiring resources, and instead rely on automated systems to complete routine tedious tasks. Only where human intervention is needed should it be directed to the person in charge.

Predictive analytics [a part of AI] is another tool that is helping insurers speed up processes, especially when it comes to claims processing.

**Internet of things (IoT) data**

The volume of data from IoT is enough to initiate the need to automate with advanced tools including AI and ML. According to Gartner, by 2020, 20% of insurance enterprises will have a dedicated team to guide and monitor these technologies. Training will take precedence over programming solutions. Disorganized data will make it difficult to complete processes and even AI/ML systems will not be able to assimilate the same, and use it to complete a transaction. Similarly, data cleaning is a process that is all about removing any inconsistency, discrepancy or redundancy amidst the gathered data.

**Data from connected devices**

With Omni channel, MXDP and Robotics playing a major role in the insurance industry, there is bound to be an increase in the number of connected devices [Smart phones, home assistants, wearables, trackers and others] with new ones joining them along the way. This could lead to a whole new set of data captured across these devices. With AI systems taking over insurance operations, the data captured will help understand the customers better, thereby resulting in better products and services, including personalized pricing.

Another aspect of IoT that is revolutionizing the insurance space is using 'real-time data'. The data gathered from various sources, sensors and even the connected devices provides insurers with huge volumes of data that can be analysed, and used to make forecasts, and suggestions. This leads to personalization of services and products offered. By using the wearables, insurers gain insight into the customer’s lifestyle, health and behaviour pattern which at the end of the day can prove beneficial for the customers as well, since it affects their premium amount.

**Pricing**

The one main area where AI could improve the industry is around the pricing. With AI, companies can define the price of their policies and in fact personalize it for each of their customers. For a company into Life insurance, AI could help obtain information about a customer’s life, beyond just what they have shared on their policy forms and figure out how much they can afford to spend on an insurance policy.
Natural Language Processing [NLP]

Computers have been known to struggle with heavy data that is not organized into tables or charts. But then, most of the data in our industries is unstructured. It could be across forms, emails, chat logs, and every other medium known to mankind. With NLP, computers and devices are learning to make sense of this data, and translate it to something that can help the business. Over the years, AI researchers have been working on developing larger models that can take on this and higher levels of complications in language-related tasks.

Claims handling

Insurance companies spend the most amount of time & money on claims processing and on the resources required for the same. Using AI, the time spent on each claim is reduced, and this in turn helps in closing claims much faster. In retrospect, this enhances the experience a customer enjoys with the company, ensuring they continue and bring in other customers as well.

Artificial Intelligence, Machine Learning and other models are here to equip insurers with better understanding of claims, including the cost involved. The insights provided will help save money and increase efficiency of the processes. Insurers also gain confidence in dealing with customers and work on upsell opportunities.

Fraud detection

If you look at the insurance fraud numbers, it would leave you speechless. In the US, it is said to be over $40 billion every year. With digitization and AI, the system can be used to detect frauds and discrepancies. Verifying data entered by the customer, false information shared are some areas where AI could help remove fraudulent acts related to lower premiums, bigger claim payouts and other such activities.

An AI-powered bot can review the claim, verify all policy details and have it processed through a fraud detection system before it is sent to the final payment authority. This is the best possible way the insurance company can reduce the amount of frauds. AI-powered automated claims system relieves companies from the pressure of dealing with fraudulent claims and any possible human errors.

"Reducing company costs (38%), generating customer insights & intelligence (37%), and improving customer experiences are the three most popular ML use cases."
Machine case use frequency

- 26% Increasing customer loyalty
- 20% Increasing customer satisfaction
- 17% Increasing conversion rates
- 14% Filtering assets & content
- 14% Building brand awareness
- 15% Others
- 37% Generating Customer insights/intelligence
- 30% Internal processing automation
- 38% Reducing Costs
- 27% Detecting fraud
- 26% Acquiring new customers
- 25% Predicting demand fluctuations
- 29% Retaining customers
- 26% Reducing customer churn
- 28% Interaction with customers
- 24% Improving customer experience
- 27% Recommender systems
- 19% Increasing long term customer engagement
- 19% Increasing customer experience
- 14% Incr. Customer satisfaction
- 14% Incr. conversion rates
- 15% Others
- 30% Internal processing automation
- 38% Reducing Costs
- 27% Detecting fraud
- 26% Acquiring new customers
- 25% Predicting demand fluctuations
- 29% Retaining customers
- 26% Reducing customer churn
- 28% Interaction with customers
- 24% Improving customer experience
- 27% Recommender systems

Source: ALGORITHMA, 2020 STATE OF ENTERPRISE MACHINE LEARNING, NOV., 2019 [PDF, 29 PP., NO OPT-IN].
AI use cases

To boost the level of service quality and increase the overall customer satisfaction levels, insurance companies have transformed their policy pricing through AI. By adopting and deploying Internet of Things (IoT) tools, personalized data was captured from the customers, and the pricing system was redefined.

So, for example, with telematics auto insurance customers will see their premium amount go lower or higher depending on their driving abilities, health conditions and other factors. Therefore, people with good healthy lifestyles and habits could rest easy knowing their insurance premium was not going to hit the sky anytime soon.

“During the last 12 months, Gartner has seen great interest in the use cases and application of AI for many tasks, including Chatbots for customer service, underwriting assistance platforms, and AI for no-touch claims processing.”- Gartner 2019 CIO Agenda: Insurance Industry Insights, Kimberly Harris-Ferrante, 15th October 2018

Image Analytics

Formulating insurance policies within minutes – Advanced image analytics allows quick analysis of photos (including selfies), to capture and study parameters of an individual such as age, habits, BMI and so on that play a vital role when putting together a life insurance policy. These data can help determine if medical underwriting is required or not. Subsequently, insurers can provide the customer with a quote that will help them take quick decisions.

Using Artificial Intelligence to analyse the images in an Straight Through Processing (STP) environment while it also checks for fraud is how the system works. Insurance companies do receive plenty of visual documents. These could be supporting documents for claims or just necessary ones for a policy purchase (Identify proof, etc). Sometimes customers provide proof in the form of images when they are filing for loss of a valuable object insured.
Machine Learning [Automated Process of Claims]

The underwriter saves plenty of time in extracting data from pages and pages across documents before taking a decision on a claim request. Artificial Intelligence, Machine Learning, and deep learning can help in extracting relevant data from these documents submitted, make sense of it, and close the process within minutes if not seconds.

Many companies are using AI based systems to study and process documents that are handwritten using the cloud-based AI optical character recognition [OCR] service.

Process Automation of Data Intake

As with the claims processing, when a customer feeds data into the system, there is the worry of accuracy. The data is fairly unstructured if there is no standardization in place, and can be in various formats. Collating, and putting them into a structure could be cumbersome. Utilizing AI resources, the patterns and formats are studied by the systems, and they are mapped in an organized manner. AI can also improve the data quality by detecting gaps in data provided by customers and correcting the same.

Chatbots and Virtual Agents

Customers tire easy if they have to deal with complicated and long drawn processes. While digitization and reliable distribution channels have ensured seamless flow, some of the steps are daunting, especially for the customer. Thanks to Robotic Process Automation [RPA], Chatbots that have been developed from Natural Language Processing [NLP] capabilities of AI, serve as Virtual Agents. These virtual agents are taking customer service to another level. Customers can now use these assistants to clarify queries, obtain quotes, check available insurance plans, compare multiple policies, calculate insurance premiums, and even help them make the purchase.

Insurance Advice

Machines and technology will take over the space of customer service- with gathering data to interactions with the customer. According to surveys done by research firms, it is evident that people are happy to connect and receive inputs from a computer-generated device. The multi access demands and various online interfaces available today make it far more efficient for a customer to interact and close out on transactions. This could be when making a purchase or filing a claim after a mishap. Customers today are able to select the option that works for them, and reach out any given point of time for assistance. They are looking for personalized solutions and with these new algorithms in place; the possibilities of tailored solutions are endless. Insurers are therefore making use of chatbots and RPA to not only resolve customer issues and queries but also boost their self-confidence levels.
Why investing in AI is a good decision

By 2030, Chatbots are likely to be the primary touch-point for most customers. Statistics say there will be a phenomenal dip in human engagement with a customer, nearly 70% - 90% down when compared to 2018. [McKinsey report]

The one arena in the insurance industry that AI is creating waves is in the claims processing segment. With automated systems and algorithms in place to detect anomalies within seconds, processes will be far more accurate and efficient. The strategies and plans should definitely address all four dimensions involved in an insurance large scale initiative, it should cover everything from data to people to organisation culture. The four key elements that define how successful AI strategies for a business are,

- Data Capabilities
- Organization & talent
- Change Management
- Models and tools

Source: https://www.mckinsey.com/
Apart from the main elements, here are the top three reasons why we feel investing in AI is a good decision.

**Behavior based premium pricing**

IoT enabled data is opening doors that insurance companies did not know existed. With wearable devices and telematics enabled services, based on a customer’s risk pattern and behaviour, the premiums shall differ, thereby pushing the customer to change their lifestyle choices. Similarly, the data captured enables the carriers to assess the information captured and take timely decisions.

**Customer experience & policy personalization**

Customer experience & policy personalization: AI interfaces will allow for better customer onboarding experience with the help of chatbots that will study and present reports on the personal data captured and use digital platforms to share information. Customers and data entered will be verified at all stages and the system allows web or mobile app based insurance policy purchases.

**Faster claims settlement**

Utilizing AI systems ensures claims related processes are faster and better. The time taken to close a claim request and monitoring data assures the company the fraudulent entries/people is kept at bay. AI settles claims faster while decreasing fraud.

Insurance enterprises and agents firmly believe that artificial intelligence (AI) is just the solution they needed to transform the way they approach insurance sales. Whether it is telematics, chatbots or other customization platforms, the technology is here to stay!
Five Questions to ask before taking the leap

01. Do you understand the evolving customer needs? Not just those based on your demography, but customers across the country/world. What do they seek from insurance coverage? How are they going about their day-to-day transactions?

02. Do you understand their path to purchase? Self-service and automation will be a game changer, but if implemented at the right time, with the right products across the right channels.

03. Is your data ecosystem sorted? Only when things are streamlined will it make sense and be effective.

04. Do you have a good understanding of your insurers and the underwriters? What additional assistance do they require to make their life better and increase sales/speed of process?

05. Are your products organized, either category-wise or based on their complexity? How much training do your insurers require every time you add a new product and are they able to push the ones that a customer might be seeking accurately? How is their connection with the customer? Does the human touch make a difference when compared to a bot?
Neutrinos Market View for AI Solutions

- Image Cognition Services in the platform.
- Intelligent Document Recognition and Character Recognition Support on mobile applications.
- Text Analysis Services
- Intent Analysis
- Named Entity Cognition
- Custom Classifier Service.

- Neutral Network Connectivity
- AR/VR/Mixed- Holo Lens based solutions
- Smart Investor
- Guided Driverless Transportation
- Smart Healthcare

- Visual Interaction - Video based KYC
- Optical Scanning - Image and Video Cognition
- Chatbots/AI Assistants for Business Protocols
- IOT based End User Preference Predictions
Neutrinos Case studies in Artificial Intelligence.

The largest insurance company in Malaysia

**e-Payment Authorization using RPA tool**

The Customer was reeling with queries related to e-payment authorization since uploading the supporting documents took long and there were issues around configurability, usability, performance and wait times. It affected the workflow, since the process flow was not optimized.

Neutrinos created an e-form on Digital Workplace that would help drive e-payment authorization requests of New Registration and to make any changes desired. This eased up the entire e-payment authorization process. This led to the client achieving Business Agility and smooth workflows.

**Benefit:** The Customer achieved Business Agility with Compliance ease and visibility, along with clear approval process across workflow.

The leading insurance company in South Africa

**Forward Invoice Payment Solutions**

The Customer was looking for an automated solution for extracting the attachment from the repairers’ emails for invoice processing, mainly because the format used varied.

Neutrinos introduced a solution based on A RPA Tool where once the MBR submitted the final invoices and statements, the allocator would then pass on the relevant documents to Payment Operator Diary. The operator accessed AS400 Diary Entry to view documents, moving on to payment release and ultimately authorizing the same to clear payment due.

**Benefit:** The Customer experienced lesser human intervention, faster processing of invoice and smart output. The system also provided insights using the analytics.
**A leading life insurance company**

**Unified Omni-Platform Solution**

The Customer has three main customer servicing wings- Call Centers, Twitter handler & Walk-in Centers across which they were facing issues. Identifying complaints and requests from customers was done manually, which delayed the response time, and some were lost in process.

Neutrinos crated a single application that resolved this challenge. It consolidated data from across call centers to a single point; Twitter handler was able to identify influencers, and segregate data and enabled a monitoring system based on wait and SLA time to send alerts and notifications to the staff at the walk in centers across South Africa.

**Benefit:** The Customer was able to serve 1 Million happy customers across the countries with 99.999% Uptime, which improved customer experience and enhanced the services offered across three service wings. The dashboards utilized Neutrinos cognitive services, MongoDB as the Big Data /No-SQL database, and these solutions offered real time updates across the web and mobile apps.

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**A leading investment and finance company in India**

**E-mail BOT**

The Customer was dealing with the challenge of processing the 12000 emails they received, with majority being NOC Certificate requests and they had a mere 12member agent team for this mammoth task.

Neutrinos set up an Email Bot to respond to the mails, subsequent to Sentimental Analysis was carried out on the mails which also segregated the mails based on the purpose while the customer credentials were verified before the NOC documents were processed and a suitable response was sent to the client.

**Benefit:** The Customer saw optimization of resource and time, apart from quicker response to customers with the Email Bots handling service requests. There was also an increase in customer and insurer satisfaction.
The Neutrinos Advantage

Neutrinos’ insightful and incisive approaches to developing affordable business solutions ensure that clients are able to leverage the disruptive edge of technology while at the same time keeping an eye on their ROI. Offering in-built capabilities for the adoption of emerging and futuristic technologies such as IoT, AI, BPM, etc.,

Applications can be deployed on any cloud or on premise or hybrid environments. 2000+ Connectors spanning across new-age technologies such as Email, Chatbots, Artificial Intelligence (AI), Internet of Things (IoT), Natural Language Processing (NLP), and experts available for consultation on Extended Reality/Mixed Reality (XR/MR) as well, further, facilitate the development of multi-experience applications.

Neutrinos is in a prime position to provide infrastructure for enterprises to create solutions for specific domains and help end-customers successfully negotiate their digital transformation journeys.

What’s more, since the Neutrinos platform is agnostic to third-party platforms, customers can easily reuse existing assets.

Talk to us today!
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Neutrinos is a Multi-experience Development company that offers a platform to ideate, transform, and build complex enterprise applications within days – or sometimes hours. Neutrinos is headquartered in Singapore and has operations across South Africa, South East Asia, India, and the USA.

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