The Age of With™
Accelerating the impact of augmented intelligence in insurance
Executive summary

The insurance industry is undergoing historic levels of change. The age of disruption is creating a sense of urgency and forcing insurers to react. Tech giants like Tesla and Alibaba have invested in insurance companies in order to increase their ability to share external data sources across multiple platforms, thus allowing them to ramp up insurance personalization capabilities. Auto insurers such as Metromile and Allstate are now offering usage-based insurance to drive efficiencies in underwriting and risk monitoring. Business leaders are constantly asking key questions related to artificial intelligence: Will advanced technologies replace human workers? Should I invest more in machines, or in people?

The answer to these questions is not machines versus humans, but machines with humans. In the face of disruption, Deloitte has developed multiple solutions aiming to help insurers fast-track their operations, increase agility in assessing risks, and make better decisions. For example, Deloitte is collaborating with Google to develop Onsite AI, a cloud-based solution that allows insurers to underwrite properties without being on site. We are also helping our clients automate contract management (dTrax), identify and manage risks to their brand (CRISP), and improve rate profiling (RateCloud).

This paper aims to answer:

• What are the platforms driving evolutonal changes in the insurance sector?
• What are the key issues facing the sector, and how can insurers approach these issues?
• What are the fundamental shifts happening in the insurance industry, and why must insurers act now?
• How will key roles in today’s insurance industry evolve into tomorrow’s?
• How should insurers prepare and manage AI at scale?

By adopting a human-centric lens in the era of augmented intelligence, we discuss how the AI transformation will necessitate transitioning of key roles in the insurance value chain into new functions, and what insurers should do to ensure success while avoiding the gaps and challenges.

One of the goals of our Age of With papers are to create a discussion around building human intelligence where it is aided, enhanced, and augmented with AI.
The age of disruption in insurance

The age of digital disruption has permanently altered the insurance market landscape and is radically transforming the global property and casualty (P&C) sector. Rapidly evolving technologies have collided with longstanding customer issues to create what we believe to be a series of deep, lasting, systemic challenges for insurance. Today’s insurers are being compelled by their existing and new competitors to deliver new offerings to better meet consumer needs and preferences. To do this, insurers are evolving their distribution strategies, exploring new partnerships, altering their products, and transforming how they use technology to deliver upon their strategy.

The rise of new technological trends such as IoT (Internet of Things), big data, blockchain, AI, smart technologies, and autonomous vehicles has enabled insurers to become more efficient, process-driven, and cost-effective. Progress in key operational activities is driven by new ways of interacting with consumers, automated procedures, and tech-enabled risk prevention.

Concurrently, a data explosion resulting from the expansion of these technologies, as well as some societal trends such as the sharing economy and ubiquitous connectivity, have massively increased the volume, speed, format, accuracy, and value of data sets that are collected by insurers. This means insurance will be more connected, more real-time, and more accurate.

Experts are empowered with crucial data points to achieve key insights that drive impactful product decisions. A larger proportion of lower-impact decisions are automated based on higher quality data. Telematics can work with alternative data to provide customers with unique usage-based insurance experiences. The increased availability and accessibility of real-time data will drastically impact all areas of the value chain (e.g., by improving risk assessment that will result in more accurate, dynamic pricing).

Moreover, rising customer expectations have given rise to digital intermediaries and products that are more personalized, device-oriented, and easy to use. Insurance has undergone a “retailization”—customer-centric, retail-like thinking has re-shaped the digital insurance business model. Today’s customers have a cost-effective mindset, which means they will get more for their money as policies will become cheaper and coverage will be more complete. Thinking like a retailer means thinking like a customer, and insurers will need to reinvent not only their IT, data, and customer service processes but also their overall operating culture to reflect a customer-centric reality.

On the other hand, increasing involvement from large players, such as banks and tech companies, including Google and Amazon, have expanded the horizon of opportunities for insurers. Over US$3 billion was invested in insurtech companies in 2018; Tesla, for example, announced plans to sell car insurance in 2019.

Finally, the entry of non-traditional players, such as insurtechs and fintechs, are redefining the operation and business models of today’s insurers. “Prosumer” (people who consume and produce products) offerings emerge as divisions between personal and commercial lines become increasingly blurred (e.g., Airbnb set up an insurance program that provides homeowners with primary coverage for bodily injury or property damage related to an Airbnb stay). Insurers and non-traditional players are partnering up to offer ecosystem platforms, on which insurance products are bundled with peripheral products.

All of these trends, among others, have reimagined the possibilities of what an insurer can be.
Implications

With rapid changes to the industry, the insurance of today will look very different from the insurance of tomorrow. What will be the implications of these evolving trends on the sector? What are the main issues facing it? How should insurers react?

The rise of new technological trends has enabled insurers to become more efficient, process-driven, and cost-effective.

The data explosion has pushed insurance to be more connected, more real-time, and more accurate.

Rising customer expectations have given rise to digital intermediaries and products that are more personalized, device-oriented, and easy to use.

The increasing involvement from large players, such as major tech companies, has expanded the horizon of opportunities for insurers.

The entry of non-traditional players, such as insurtechs and fintechs, are redefining the operation and business models of today’s users.

Insurers globally will start to act fast to grab the quick wins that new technology has brought about. For example, back office operations will be replaced by robotic processes and robotic process automation. When this happens, the current human workforce may undergo a huge transformation, and insurers must understand the potential threats and risks this may bring. To face these challenges, insurers must make changes to their technology foundation, processes, and operational model according to their strategy and vision, and insurers need to be mindful of the wide-scale change management that will take place throughout this process. The future-state roadmap needs to be updated to prepare for change. Insurers must be constantly asking questions like, “Will my employees be replaced?” “How can I re-engineer internal processes to meet new business needs and enable new capabilities?”

As data permits insurance to be more and more personalized, customers who are priced out will be excluded by more individualized models. As AI experts train unique algorithms with company-specific data, the gap between those who receive tailored service and offerings and those who are excluded may become larger over time. Insurers will need to balance between investing in customer retention (and upselling to maximize profit gains) in the current customer pool and spending time and resources on additional algorithms that may capture the outlier customers. In an attempt to find this balance, there are some key questions an insurer might consider: “Am I operating in a specific sector or niche?” “Am I an incumbent who has already accumulated massive data points on existing customers, and if not, how can I best discover customers are priced out by bigger companies?”

As AI becomes more pervasive, an increasing part of lead identification, generation, and capture will be automated by AI. This will slowly become reality for many companies that are looking to personalize at scale, so the key questions to winning market share will become: “How do I acquire the best actuaries who can understand and leverage AI tools to offer the most relevant product offerings?” “Where can I acquire data that my competitors don’t have access to, to help me understand what my customers really want?”

As insurers collect more data points via increased customer interactions, customers are also expecting insurers to increase points of contact at relevant times with relevant messaging and offerings. In fact, 57 percent of insurance customers around the world, across all product types, prefer to hear from their providers at least semi-annually; only 47 percent receive that level of contact currently. As AI becomes more pervasive, an increasing part of lead identification, generation, and capture will be automated by AI. This will slowly become reality for many companies that are looking to personalize at scale, so the key questions to winning market share will become: “How do I acquire the best actuaries who can understand and leverage AI tools to offer the most relevant product offerings?” “Where can I acquire data that my competitors don’t have access to, to help me understand what my customers really want?”

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Incumbents will start from a position of disadvantage on the data battlefront compared to large technology - but they can partner to advance. For example, Amazon is about to offer insurance in conjunction with its connected home devices. According to a J.D. Power survey, one in five consumers say they would use Amazon for their home insurance—and most of those who took the survey (80 percent) already have insurance with a large national carrier. With billions of consumer data points and deep AI expertise, the power of these tech players is not to be underestimated. There are tremendous opportunities to exponentially grow an insurer’s capabilities when the right kind of partnerships are fostered. For example, Google invested in Applied Systems, a provider of insurance technology and cloud-based software for independent agencies. The company will be able to use Google Alphabet’s big data and virtual technology to enable better customer engagement and solve critical problems and issues. Insurers need to explore these questions: “Will this partnership help me gain an advantage in the data battlefield, and if so do I have the technological capabilities to process it?” “What data can be shared, and what cannot?”

Growth potential will be concentrated in non-traditional markets due to the accelerated technological abilities of new players. In fact, the growth rate in life and non-life insurance markets in Southeast Asia is two to three times the global average. Eighty percent of global growth in gross written premiums in China between 2010 and 2015, but only 3.7 percent average real growth of the global insurance industry from 2016 to 2018. The macro-environment shifts are usually outside of an insurer’s control, and variables are extremely versatile. Therefore, insurers should focus on: “How can I bring more relevant product offerings for customers?” “How can I explore new ways to generate revenue, such as reducing cost with automation, or discover new risk categories?”
The AI imperative in insurance

As we examine the challenges insurers may face, we asked: What does for this mean for insurers today, and what may it mean for them tomorrow? Why should insurers act now to protect their future?

Evidently, the AI shift is resulting in far-reaching consequences, and insurers need to react accordingly:

- **Customers need to be served differently.** As customer demands lead to increased interactions, insurers will need to shift from transactional, low-touch customer interactions to more advisory, high-value, and high-touch customer interactions. Individual needs can no longer be fulfilled with a set of defined product features and standardized pricing – insurers will need to learn to solve customized needs and preferences with solution-based offerings.

- **Customers need to be targeted differently.** Consumer data is a critical ingredient in the building of future value propositions—not just aggregated demographics or risk profiles, but highly individualized customer profiles. Insurers need to shift from offering segment-based products and promotions, to hyper-personalized offerings and engagements. As privacy concerns arise, enabling consumers to actively decide what they are willing to share and when will be critical to putting them in the driver’s seat.

- **Insurers need to play differently.** Today, as most insurers are still experimenting with these technologies, they are largely viewed in isolation. However, in the future, the continued convergence of data and technologies will allow insurers to “do a lot more with less”, causing a step-change in operational efficiency and customer engagement, and enable secure data sharing at a scale not possible before. Insurers need to shift from being reactive and only responding to customer-initiated actions to a more proactive, preventive mindset – and develop better tracking and predictive capabilities to pre-empt customer needs.

- **Insurers must act now.** As we unwrap the mystery of AI and what it means for the insurance industry, we can clearly see that the transition to an AI future is no longer an option.

### Insurance of today

<table>
<thead>
<tr>
<th>Transactional</th>
<th>Advisory</th>
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<tr>
<td>It's mostly focused on tactical, low-touch customer interactions.</td>
<td>It's mostly focused on high-value, high-touch customer interactions.</td>
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<th>Reactive</th>
<th>Proactive</th>
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<td>Actions are mostly initiated by customers: the insurance company then reacts.</td>
<td>Better tracking and predictive capabilities pre-empt customer actions.</td>
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<tr>
<th>Segment-based</th>
<th>Individualized</th>
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<tr>
<td>Products, promotions, and pricing are based on aggregated risk profiles.</td>
<td>Offerings are hyper-personalized and customer engagements are individualized.</td>
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<th>Product-based</th>
<th>Solution-based</th>
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<tr>
<td>There is a defined set of product features with standardized pricing and placement.</td>
<td>Offerings are customized based on individual customer needs and preferences.</td>
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From AI today to AI tomorrow

As we learn about the AI imperative, insurers are constantly asking questions: What will the future look like? Will humans be replaced by machines?

### Assisted intelligence:
Requires human assistance and interpretation (e.g., data management, data analytics, robotics process automation, AI risk and control)

### Augmented intelligence:
Machine learning augments human decisions (e.g., intelligent automation, cognitive insights, cognitive engagement, narrow AI)

### Autonomous intelligence:
AI decides and executes autonomously (e.g., general AI, blockchain)

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**Case study: Onsite AI**

**What is Onsite AI?**

Onsite AI is a cloud solution developed by Deloitte and Google that has been built to transform the underwriting process. It provides the intelligence needed to underwrite a property without having to be on-site, using real-time, on-demand data to create a digital print of any location across the world.

**How does it work?**

- **Onsite AI mines global data sources.** Machine learning algorithms extract, transform, and combine unstructured and structured data, drawing on a range of sources such as open data, satellite/aerial imagery, and social media.

- **Then a digital print of properties is created** to equip underwriters with all they need to know about the building they are assessing, without needing to visit the site. Onsite AI delivers the attributes of any building around the world by using additional analytics from local surroundings, 3D building generation, building detection, interior scene analytics, facade classification, and local points of interest.

- **Users are able to re-run pricing scenarios in real-time** in a controlled environment since Onsite AI provides an application programming interface to easily integrate insights on all properties into an existing database. This increases the accuracy of underwriting assessments and also makes scaling easier.

**What are the benefits?**

1. Reduces the need for physical inspections
2. Improves risk assessment and portfolio management
3. Enables personalized pricing for customers
4. Accelerates the quotation process
5. Uses specialist expertise
6. Grows businesses in new locations and markets

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**The Age of With™**

Neither technology nor people alone can respond to the current driving forces of change. It will take humans working together with machines in a designed system.

To succeed in the future, insurers need to set a deliberate strategy and unlock machine abilities to enable strategic decision-making for humans.

Without an enterprise strategy that sets the foreground for using data, it will be extremely difficult to choose the right data in order to build the right models that drive key business decisions. Without business-relevant analytics that can be put to use, technology efforts may simply be futile.

Unlock data science

"With"

Augment Human Intelligence

Progress in key operational activities are driven by data, and technology will act as a key enabler to drive critical insights for decision-making. Using AI, insurers will be able to look beyond their current customer, data, and knowledge base, and tap into unlimited opportunities that can only be unlocked with the power of data science.

Insurance is a people business. It takes one human to understand another. A machine can predict human behaviour, but it won’t understand them. This is why humans are the last piece of the puzzle to deliver customer-centric products, services, and experiences.
Humans with machines is the future of insurance

In the future of insurance, a human-centred system will enable insurers to use data with purpose unlocking insights in real-time and driving smart business outcomes. People will be the core part of the delivery mechanisms, while analytics will serve as an enabler for people to pursue business priorities.

The Age of With workforce of the future depicts how four key roles will evolve as machines replace a portion of the people processes today.

- **Actuaries**
  - Machines will make automatic recommendations for individual customers and humans will spend less time hand picking these products, instead focusing on discovering insights with mass data.
  - With the ability to look ahead, humans can strategically plan for the future workforce.

- **Underwriters**
  - Offering precise pricing since risks are evaluated automatically and more accurately by machines.
  - Underwriters can focus on offering excellent customer service with data-enriched insights and more time to respond to customer requests.

- **Agents**
  - Dealing with complex requests since simple request are already handled by machines.
  - Spending time with higher priority customers to generate better ROI.

- **Adjustors**
  - Offering personalized risk selection models to enhance rating processes.
  - Simplified AI enabled quote to bind processing.
  - Advanced customer insights to automate next best action.
  - On-demand policies (e.g., micro insurance).

The Age of With workforce of the future will transform the insurance sector by driving up-sell and retention opportunities, supporting point-of-claim fraud identification, enhancing customer profiling through analytics-driven segmentation, and automating lead generation from abandoned transactions.

Examples of key insurance value chain activities include:

- **Real-time dynamic product bundling**: Answering even the simplest customer questions.
- **Advanced triaging rules to improve reserving accuracy**: Simplified, low complexity sales conversations with AI-driven chatbots.
- **Advanced initial assessments for improved speed and accuracy**: Smart contracts to automate claims settlement (e.g., pet).
- **Predictive modeling to support point-of-claim fraud identification**: Enhanced initial assessments for improved speed and accuracy.
- **Gamification for ongoing engagement driving up-sell and retention opportunities**: On-demand policies (e.g., micro insurance).

**Legend**

- **Machines**: Done by machines
- **People**: Done by humans
- **People processes**: Age of With processes

On the outside frame, we see that machine intelligence will automate many aspects of the value chain, and the data-intensive, manual processes of today will evolve into higher cognitive activities. We will dive into four key roles in the insurance sector and explore how the operations for each role will shift from being one-dimensional; as they are today, to becoming multi-dimensional tomorrow; in other words, from performing specific tasks to making decisions based on the outcomes of multiple tasks. Some key questions we aim to answer in this section include:

- How will each key role evolve?
- What are the main enablers driving the actuarial, underwriting, servicing, and adjusting transformation?
- What are the gaps and risks that insurers need to look out for during this transformation, and how can insurers best prepare for it?
Underwriters will evolve into...

Key enablers for the future underwriter

Digital and IoT will enable insurers to provide an end-to-end policy-serving experience. Customers will need to provide less information as external data can be integrated to provide a more complete view of risk. This saves customers time and improves their experience, thereby increasing retention. For example, Sonnet, a direct-to-consumer insurance company, allows customers to buy coverage online by answering a set of simple questions. This means that policyholders are priced more effectively and more consistently as insurers leverage third-party and usage-based data.

Meanwhile, real-time connectivity will allow any-time submission of risks and enable usage-based insurance. Digital interfaces can enable the provisioning of insurance any time and the ability to perform that in a much more simplified manner when coupled with third-party data and analytics. The "always on" insurer allows the customer to increase or decrease coverage depending on needs (e.g., pay as you drive). This also presents a unique opportunity for insurers to transform the insurer/customer dynamic from a defensive to an offensive posture, by helping policyholders prevent losses and drive down claims costs.

Additionally, cognitive analytics will help underwriters enhance decision-making and improve the quality of their results. Underwriting is more than risk selection and pricing. It also requires qualitative judgments about future industry performance and rigorous portfolio management to avoid markets where even great underwriting cannot compensate for unfavourable conditions. By analyzing third-party or alternative data and equipping underwriters with relevant portfolio analytics, better risk selections can be made and greater levels of productivity will be sprung. That's because, beyond underwriting decisions, managerial decisions can also be improved upon.

Finally, machine-learning solutions can enhance underwriting analytics and help underwriters save time through the triaging process. We now collect data directly from the customer and can integrate large amounts of external data into the process. With the help of advanced technologies, insurers can easily evaluate submissions to see if they match their risk appetite and route them to either automated, low-touch, or full-touch underwriting. Underwriters can then make their decision based on the analytics, rules engines, and machine-learning stats.

How should insurers prepare for the transformation of underwriting with AI?

Plan for talent transformation

Robotic transformation will redesign job descriptions and sometimes even entire functions within a company. Fewer people will be involved in what used to be people processes, and so insurers will need to reinvest in training people for higher-value tasks that require human input. Insurers should execute their automation agenda as part of a long-term talent transformation.

Ensure data transparency

As mentioned, data plays a vital role in optimizing underwriting processes. This is why insurers must stay ahead of data privacy regulation, and make sure transparency is enforced so that policyholders understand exactly what data is being collected about them and how the company plans to use the information.

Use-case examples:

- **Simplified, AI-enabled quote to bind processing**
- **Personalized risk selection models to enhance rating process**
- **Dynamic pricing processes for adapting to new products**
- **Access to third-party data to improve risk selection/rating**

See it in action: generation of health risk assessment assessment

**Targeting safer drivers**

State Farm ran a proof of concept to develop a program that uses computer vision and dashboard camera photos to identify distracted drivers. This data can be used to micro-target safer drivers and offer lower premiums.

**Gamefied insurance policies**

John Hancock is integrating Vitality into its new life insurance policies being issued. Through Vitality, customers can earn rewards by performing physical activities (measured through customers’ step count). Globally, Vitality policyholders live 13 to 21 years longer than the rest of the insured population, and have 30 percent lower hospital costs.
Agents will evolve into...

**Specialized customer experts**
By allocating more time to serving customers and leveraging strong insights about customer behaviours, needs, and preferences, the agent can become a customer expert.

**Ecosystem integrators**
Given agents’ understanding of the customers, they can market their customer knowledge and connections to other roles in the insurance ecosystem, sharing this information across partners to help inform more customer-centric decision-making throughout the value chain.

Key enablers for the future agent

**Traditional and non-traditional data equips future agents with personalized products and services recommendations, to drive purchase and retention.** Partnerships with other companies once classed as competitors (e.g., incumbents and new entrants) are now classifying themselves as “co-petitors” to share data about customers and reposition for new, more enticing products and offers. These “prosumer offerings” mean to meet the needs and preferences of customers in the most effective way. Agents will be powered by AI-driven insights via digital platforms (e.g., next best action, likelihood to purchase scores based on customer life-stage) to deliver targeted and proactive product recommendations, leading to deeper and more meaningful customer relationships.

Virtual assistants are allowing customers to get answers immediately and accurately, and helping insurers optimize customer servicing costs. Insurers are looking for methods to augment current channel experience and provide more real-time, personalized support at lower cost. Virtual assistants (e.g., chatbots) introduce an opportunity to connect with customers in their own space (e.g., Facebook Messenger), shifting high-frequency, low-value customer requests to a lower-cost channel.

On the other hand, AI can be used to provide issue-solving recommendations based on clustered historical customer profile and service data, saving time for agents. By using AI, it is possible to design a more efficient input management system that avoids subsequent manual work, automatically deletes duplicated info, and learns from previous interactions to cluster useful information. This will enable the customer interface to route each issue to the right internal contact, and provide recommendations based on previous interactions with the same customer, making the agent’s job more efficient.

**Build local communities**
Agents have to find ways to decrease their cost and/or increase the quality of their service, and building local communities is a great way to do both. By fostering a close-knit community, the agent becomes the go-to when digital channels cannot solve customer needs or provide better answers for customers who are beginning to proactively own the insurance process.

**Stay ahead on new technologies, products, and trends**
An important aspect of the agent’s role is advising customers which insurance product they should choose, and why. As the barrier to learning about insurance policies decreases due to digital channels and proactive touchpoints, the broker of the future will not only need to educate customers on policies, coverage, and insurance products, but also on new ways to insure, such as usage-based insurance (UBI) or peer-to-peer (P2P) insurance.

**Use-case examples:**

- **Simplified agent interactions**
- **Enhanced customer profiling through analytics-driven segmentation**
- **Proactive lead generation from abandoned transactions**
- **Gamification for ongoing engagement, driving up-sell and retention opportunities**

**See it in action: Intelligent chatbots and virtual assistants**

**Improving customer relations**
EchoSage has created robo-advisers that are expected to complement conversations between agents and their customers, and to support interactions that are transactional in nature or where potential margins are small.

**Supporting training and searching**
Allstate leverages an AI-powered virtual assistant, Amelia, to train newly hired agents on legal restrictions and policies. The virtual assistant also provides other tips to minimize human errors during customer calls.
Actuaries will evolve into...

Key enablers for the future actuary
Robotics will automate various segments of the actuarial process to refocus human effort on more important tasks. Currently, actuaries perform a range of activities across the cognitive/social spectrum, with more effort spent than desired on lower cognitive activities, such as computation and distillation. With the disruption of technological and talent/operating innovation, the nature of the actuarial profession and its anticipated future activities will shift human work toward higher cognitive and value-add activities, such as ideation and decision-making.

New tools will assist actuaries in identifying trends and anomalies, then prioritizing reviews for the actuarial team. This not only upscale the productivity level, but also reviews more straight-through processing. Some areas may actually require more human effort spent than desired on lower cognitive/social spectrum, with more cognitive activities, such as computation and distillation. With the disruption of technological and talent/operating innovation, the nature of the actuarial profession and its anticipated future activities will shift human work toward higher cognitive and value-add activities, such as ideation and decision-making.

Strategic planners
Equipped with data to support strategic decision-making, actuaries can help expand an insurer’s strategic options by recommending new ideas to evolve the product and customer mix.

Cross-functional collaborator
With the expertise to evaluate data in untraditional and productive ways, actuaries can support many roles across the insurance value chain in making use of their data.

Finally, RPA can improve data quality / consistency that can result in better analytics, insights and increased revenue. Because the actuarial function involves handling large amounts of data on a day-to-day basis, data quality and governance play a very important role in enabling effective data analytics capabilities. Robotic platforms are secure, audited and managed within an IT corridor of governance. Therefore, adopting robotic functions will not only save efforts on data management, but also provide high potential ROI.

AI and other new technologies enable new actuarial capabilities and insights. An example of these are advancements in insurtech. They are enabling new capabilities such as regtech (regulatory technology), which allows for compliance reporting at a more granular level and answers a much broader range of questions. Using sophisticated analytics, data integration, and natural language processing, the compliance department can better respond to changing regulatory demands and apply analytics to advise business functions, and to determine areas of heightened regulatory risks, such as agent sales practices, rate and form filings, customer and third-party fraud, and business operations.

On the other hand, modernized core actuarial infrastructure and platforms (e.g., data warehouse and actuarial models) can support reengineered actuarial processes and improve capabilities at a lower cost. The evolution of technology is also giving rise to more advanced foundational tools to support new processes such as RPA or cognitive automation. Thus, through adoption of modernized platforms, there will be long-term benefits such as minimized time, cost and effort to complete the same process, especially where business requirements haven’t changed. However, this may require considerable investments in terms of time, costs, and resources.

In Canada, property and casualty loss ratios are the highest they have been in a decade. Yet it takes insurers on average four to six months to file and receive approval of new rates. Pricing agility is hindered by incomplete or inaccurate data, inefficient and convoluted processes, and a lack of effective controls. Deloitte devised a solution for this.

The RateCloud solution is a new cloud-hosted product that enables users to re-run pricing scenarios in real time in a controlled environment, improving the efficiency and speed of pricing, from source data to regulatory filing, eliminating human error. By increasing rate-filing agility with the help of RateCloud, Intact was able to achieve a rate increase of 5 percent, saving one month processing time, and increase more than $7 million in revenue in private passenger vehicle (PPV) insurance.

How should insurers prepare for the actuarial transformation with AI?

Scale and adapt to conquer growth challenges
Changing demographic expectations regarding omnichannel delivery and greater service necessitate innovative products and optimized operations across distribution channels. Finance and actuarial systems and processes should be scalable and adaptable to incorporate new markets, products, legal entities, and regulations.

Insurers need to rethink people and processes
In the actuarial reserving process, insurers need to be more provocative during triage to ensure resources are well leveraged and not being spread too thin (e.g., more straight-through processing). Some areas may actually require more human time, but resources need to be deployed in areas with the most impact. Throughout the transformation, actuaries must be equipped with new skills, and insurers need to provide sufficient learning and development opportunities to equip actuaries with the right tools and knowledge.

Use-case examples:

Advanced modelling to facilitate macro-economic risk evaluation
Enhanced customer risk-profiling through analytics-driven segmentation
Early-duration claims model to identify patterns associated with accidental deaths
Mortality modelling based on biological indicators of aging

See it in action: Rate-filing automation and validation

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Claims officers will evolve into...

Customer loyalty drivers
As the speed and quality of the claims process is a key determinant of the broader insurance experience, enabling adjustors with AI offers the opportunity to improve overall customer satisfaction and loyalty.

Customer liability experts
Adjustors, better equipped with claims insights, have the opportunity to leverage data to evaluate liability and thereby inform strategic decision-making.

Key enablers for the future adjustor
AI is being used to triage and grade claims to increase adjudicator efficiency. Currently, claims processing often requires adjustors to manually review complex documents, which slows response time. Technology will be able to help adjustors rank claim severity using deep learning to read claims documents and score their urgency, severity and compliance to expedite triage. This will provide adjustors with summaries and statistics that enhance their decision-making and can also increase the efficiency of individual underwriters. As a result, this will help void poor claims experiences and deliver positive customer outcomes.

Advanced algorithms can be used to automate fraud detection, improve claims performance, and improve customer satisfaction at the same time. New tools and new data can be used to analyze large quantities of data efficiently and accurately through machine learning, allowing for in-depth review of every submitted claim for fraud. Claims fraud is a major cost centre but in the meantime it is a major avoidable cost for insurers. Analytical models using external data (e.g., news reports, social media) can more accurately flag cases of fraud, reducing potential losses while increasing throughput and cutting costs at scale as a result.

On the other hand, claims settlement is becoming an automated, self-service and quick-to-pay experience for customers. Machine-learning algorithms (e.g., natural language processing, image recognition) integrated with internal (e.g., customer policy) and external (e.g., medical records) data can enable insurers to fully automate claims payout for a majority of cases, allowing insurers to process claims instantly. Instant payout can increase customer satisfaction while reducing operating cost. Algorithms are able to refer complex claims to adjudicators as appropriate, ensuring fraud and errors are minimized.

Telematics and external data can be used to help people respond faster to natural disasters, and restore livelihoods more efficiently. For example, Tractable focuses on creating representations that capture the subtlety of real damaged automobiles and properties. In a car crash, there might be incurred, but not reported, losses; for example, internal damages. Therefore, the appraisal should be not just visual but also based on IoT or telematics data. This means that, due to high accuracy, claim officers only need to review 5 to 10 percent of the estimates.

Reinforce up-to-date privacy regulations
The automation and risk prevention aspect of claims largely relies on internal and external data, for example IoT and new data sources are used to monitor risk and trigger interventions when factors exceed AI-defined thresholds. This means that insurers should be more cautious about using the data at hand, and maintaining transparency for customers.

Use AI-forward technologies to conduct investigations
With the advancement of technology comes the increase in available data, both for the adjustor and the client. Adjustors must be aware of what implications this has on investigating claims, both positive and negative. Technological advances may lead to more fraudulent activity, as well as more advanced investigative methods to combat such risks.

Use-case examples:

- **Automated claims handling with RCA and advanced analytics**
- **Enhanced initial assessments for improved speed and accuracy**
- **Advanced customer insights to automate next best action**
- **Customer behavioural and channel preference identification**

See it in action: Accurate, friction-free claims processing

**Accurate analyses**
Suncorp® uses an AI tool to conduct liability analysis and fast-track simple claims, such as single vehicle incidents with detailed descriptions, with a 95 percent accuracy level.

**Pattern identification**
Shift Technology® uses AI to find patterns of fraud in deep claims datasets, which can then be applied to incoming claims in order to flag potential instances of fraud.
Scaling in the age of with AI

The technological view of the value chain in the future of insurance may look very different from today. How would insurers move on from ballpark into more integrated systems being conducted end-to-end by machines? What are the critical steps to ensure success, and the things to look out for?

While many insurers are pursuing AI initiatives, only 17 percent of companies have scaled or industrialized AI technologies. Companies have been successfully applying AI to a wide variety of processes, products, and services, and adopted AI use cases to enable various parts of the value chain. However, as insurers seek to adopt AI at scale, they run into what we call the “AI paradox”: It is easy to see results from 10, 50, or 100 AI pilots, but all sorts of problems arise when companies try to scale AI across the enterprise. The following are some key considerations for insurers:

AI systems are different from typical IT infrastructures. Traditional IT systems are easy to modularize, encapsulate, and scale because they work by processing data inputs and data outputs with a specific IT tool. However, AI algorithms learn by ingesting data, manipulating it with the AI tool. The training data is an integral part of the overall system. This entanglement is easy to manage for pilots and isolated use cases, but becomes difficult to address because AI systems interact with and build upon one another. This has many implications; for example, the way that companies deal with AI vendors will become more complex as they interact with different AI systems in the future. Companies should expect to deal with vendors in the near future, as vendors have hired much AI talent and usually have stronger expertise. Companies should be prepared to deal with vendors in a strategic way that does not hurt existing data and can strengthen competitive advantage.

An AI-driven enterprise needs the right blend of talent, but team curation of the right “purple” AI talent (those who possess a mix of business and technology skills) is challenging. On one hand, there seems to be a lack of AI data scientists who understand the insurance business well enough to train the best risk algorithms to help an insurer gain an advantage against competitors. On the other hand, employees face the concern of being replaced by machines as AI becomes pervasive across the enterprise. Tackling these challenges requires finding the right talent, strategically embedding them to be central to the delivery mechanism, and enabling them with the new AI tools.

Finally, AI-driven enterprises need structure and governance. Companies that are able to strategically scale AI usually have clearly defined governance and operating models. The decision on the setup—centralized or federated—should be based on the enterprise strategy and vision. Regardless of the setup, there needs to be clear accountability and established leadership support, with dedicated AI champions.

We foresee three key areas that will get more challenging as AI scales:

**Personalization with AI at scale**

By mining internal and external data, insurers can personalize the user experience for millions of users across all marketing channels in real time. AI can help insurers build never, better products to suit customer needs, create tailored risk profiles to underwrite individualized policies, then reach customers with targeted, personalized marketing techniques. AI is personalizing the entire customer journey across the value chain.

**Digital workflow automation**

By pixelating the opportunity set by breaking the spectrum of work and entire end-to-end processes into bite-sized chunks, integrating multiple systems and sources of data, front and back office workflows can be digitalized and automated. This will result in the end-to-end process automation of what have until today mainly been people processes.

**Risk sensing and preemptive modelling**

Risk sensing is an underlying enabler that has a profound impact across distribution, underwriting, servicing, and claims. Predictive analytics techniques can enable insurers to insulate against entirely new risk categories and generate real-time interventions and advice to help customers prevent losses. Simultaneously, it can reduce fraudulent claims while increasing throughput, resulting in lower loss ratio and operating efficiency.

*Purple talent: refers those who both understand the analytics process and have business instincts (Deloitte IDO Survey Report: *The people dimension of analytics*).
Key questions and considerations for AI at scale

1. Revenue maximizing (customer facing)

- Equipped with enormous data points, insurers are able to provide better solutions for individual customers, achieving personalization at scale. With this approach, insurers focus on revenue generation by maximizing customer opportunities and increasing customer retention.

   **Example: Personalizing with AI at scale**

   - To what extent should an insurer personalize with AI to achieve optimal ROI?
   - What does this mean for the technological infrastructure supporting personalization?
   - How should insurers ensure data is cleaned, managed and stored so that it can be used to drive insights at scale?
   - How should insurers manage privacy/ethical concerns surrounding data when personalization is at scale?
   - How can insurers help their agents better understand existing AI tools?
   - Where should insurers seek agents who are equipped with AI capabilities?
   - What will happen with traditional agents who have not geared up on the technology knowledge?
   - How can the actuarial and marketing departments work together to target the right products to the right people?
   - How should different teams work together to ensure consistent messaging is delivered at an omnichannel level?
   - How should insurers streamline the reporting process to optimize for future campaigns?
   - How can insurers ensure data quality after collecting data points from millions of users?
   - How do insurers build a scalable infrastructure that can handle any volume of data in real time?
   - How can insurers train algorithms to identify insurance-specific user-level data points from customer profiles?

2. Cost focused (process optimizing)

- A key factor to increasing profit is to reduce cost by optimizing processes—and this approach allows insurers to achieve this in all areas of the value chain. Including distribution, underwriting, servicing, and claims. This means insurers are adopting a cost-centric and efficiency-driven mindset.

   **Example: Digital workflow automation**

   - Does this require considerable investments in terms of time, costs, and resources, and if so, how can insurers modularize the approach to achieve optimized value while delivering sustainable benefits?
   - How will operating models change to have business functions support an integrated AI system?
   - How do insurers ensure everyone understands the value of AI, and is part of the delivery mechanisms driving smart solutions forward?
   - How should insurers ensure the right technology is at scale?
   - How should the triaging process be streamlined further to upscale productivity?
   - What process should insurers follow to enable POCs across the enterprise?
   - How can insurers ensure the right data access is granted to the right people?

3. Financially disciplined (portfolio balancing)

- By understanding risks and predicting possible risk scenarios, insurers are able to balance this while underwriting policies to improve financial discipline. By approaching this in a risk-averse mindset, insurers can drive optimal revenue corresponding to smart AI evaluations.

   **Example: Risk sensing and preemptive modelling**

   - How can insurers reduce short-term financial risk?
   - How do they fine-tune risk parameters to improve the combined ratio?
   - How do they fine-tune risk parameters to improve the combined ratio?
   - Where should insurers seek agents who are equipped with AI capabilities?
   - How can insurers maximize profit earning in complex and embedded situations in which market resilience, lack of information, and an increasing number of specialty industries are the main threats?
   - What kind of new tools and assets should actuaries acquire to accelerate their work?
   - How should insurers ensure actuaries are equipped with a deep understanding of existing AI tools and capabilities?
   - How can insurers source the best actuarial talent who also understand the technology?
   - How can business and AI experts work together to ensure risks are immediately addressed?
   - How can insurers streamline the external/third-party data collection processes to generate faster insights?
   - How should insurers design an automated update process to ensure risk profiles are up-to-date with the new influx of data?
   - How can insurers ensure the right data access is granted to the right people?
   - How can insurers build a decision-driven AI layer taking into account large amounts of external, telematics, and natural disaster data to ensure highly accurate risk assessments?
   - How do we ensure system stability as the intelligent system grows bigger and smarter?
Path to AI implementation: Key success factors

Insurers need to think about how AI can become a key enabler of strategic choices, and not a barrier to success. What are the main considerations regarding people, process, data, and technology to ensure a friction-free change-management process?

Organizational processes and capabilities
As an insurer embarks on its AI journey, core organizational capabilities will prove vital for end-to-end analytics strategy conception and delivery. As we transition to augmented intelligence and autonomous intelligence, humans will move from lower cognitive activities to higher cognitive ones, from focusing on detailed, manual tasks to making strategic decisions and using key principles to guide machine activities. While we know that machines can adopt these cognitive activities, we also need to bring in these capabilities by:

- Understanding AI-related technologies. Exploring hypothesis-driven scenarios in order to understand and highlight where and when disruption might occur—and what it means for insurers, agents, and underwriters.
- Building a coherent strategic plan. A long-term strategic plan specific to AI will require a multi-year transformation that touches operations, talent, and technology.
- Enhancing talent and infrastructure. Integrate skills, technology, and insights from around the organization to deliver unique, holistic customer experiences.

People, culture, and change management
Deloitte’s experience with leading organizations has taught us some valuable lessons:

- Insurers are searching for the right balance between using AI to automate jobs and to augment workers. The business case for some cognitive projects, such as chatbots, relies heavily on using AI to replace workers, as insurers aim to cut costs through automation. However, reducing headcount through automation ranked lowest of all potential AI benefits in Deloitte’s State of AI 2018 survey (24 percent of FSI respondents rated this a top-three AI benefit).
- Change is not a one-time initiative as the strategic goals of the organization will evolve, requiring internal capability to embed continuous improvement.
- Insurers need to encourage the right talent and capabilities to meet evolving expectations. Improving employees’ digital capabilities and getting the most out of their data in addition to developing technical insurance knowledge is important for success.
- Successful change strategies must be leader-led. This must start at the top of the organization, and it requires all levels of leadership to be actively involved and committed, leading the way for the workforce.
- Telematics can become a competitive advantage. Inculcating the ability to bring in more data, such as on accidents, weather, and even political activity, will lead to a more accurate risk picture and so create more relevant insurance.
- Developing an agile mindset around analytics and AI will be critical for sustaining the success of the initiatives and driving the implementation of the strategy.

Technology and data foundations
There are six key steps for preparing your data foundation so you can supercharge your AI initiatives and enable wide-scale AI adoption across the enterprise:

1. Get a baseline of current-state data and analytics capabilities.
2. Define the future vision for data and analytics capabilities and identify gaps.
3. Build and enhance for foundational technology capabilities.
4. Implement operational capabilities of information management.
5. Ideate, prioritize, and implement use cases that will enable monetization of data both internally and externally.
6. Partner with other players in the ecosystem to elevate value of data utilization.

To successfully scale AI, an insurer needs to assess which steps have been fully or partially undertaken, what challenges may have emerged as a result, and which step it should take next in the near to medium term.

AI depends on one resource, arguably the most important resource for insurers’ data. And for insurers to successfully utilize the power of AI and become a leader, they need a data analytics solution that can collect, analyze, manage, and report on the data they’re collecting every second.
Endnotes


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