

THE **DATA-POWERED** INSURER

Unlocking the data premium at speed
and scale

INTRODUCTION

Insurance companies have long relied on data to price risk and adjudicate claims. In an increasingly dynamic (and volatile) market environment, the importance of data has only increased. The frequency and severity of extreme events have escalated, from climate change to globalized economic shocks, “social inflation” (rising litigation claims), and political unrest. Climate change is having a huge impact on coverage scope and underwriting assumptions. Using data, insurers not only have the opportunity to measure, report, and mitigate emissions from their own operations, but also do this for policyholders. They can understand and evaluate investment portfolios from an environment, social, governance (ESG) lens. All of this would require requiring more sophisticated and comprehensive data models to understand and manage the impact of ESG factors on insurers’ growth and profitability.

Technological changes such as the advent of autonomous vehicles and connected health will require more efficient and effective use of data in order to allow these segments to grow profitably. These factors have made understanding, managing, and accurately pricing risk more critical than ever.

As data volumes increase exponentially,¹ insurance organizations can draw on internal and external data sources to become more competitive, relevant, compliant, and profitable in the long term. By analyzing internet of things (IoT) and telematics data, insurance organizations can offer customizable services, risk-mitigation solutions, and modular pricing. Already, this is built into customer expectations across both retail and commercial lines; customers are prioritizing convenience, comprehensive coverage, favorable underwriting terms, customized advice, dynamic pricing, omnichannel engagement, and fast processing of claims.

Insurance companies with access to large volumes of non-traditional, real-time data sources (telematics, wearables, social-media data, etc.) are well positioned to meet these expectations. Those that have developed strong data and analytics capabilities will continue to win market share and create shareholder value, impacting key metrics such as loss ratios, speed and accuracy of pricing risk and claim settlements, persistency levels, etc. At the same time, competition is heating up. InsurTech companies are gaining ground by using more precise consumer data to gain deep, personalized insights, as well as to improve cross- and

upselling technique and strategy. For that primary reason, several large traditional insurance carriers are partnering closely with InsurTechs, both to deliver new capabilities to their customer bases at speed and to facilitate their entry into new segments.

In our *World InsurTech Report 2021*, we outlined how commitment to **Convenience, Advice, and Reach** (CARE) can positively impact insurers. CARE, when powered by data at scale, becomes a potent combination that can allow individual organizations to compete in the evolving insurance marketplace.

Below are the key questions we address in this research:

1. How are insurance companies benefitting from being data-driven?
2. What are data-powered organizations doing differently?
3. How can insurance organizations transform into data-powered enterprises?

35%

of insurers have gained competitive advantages from their investments in data and analytics, such as growth in premiums written and improvement in loss ratios.



EXECUTIVE SUMMARY

– KEY TAKEAWAYS

INSURERS ARE DRIVING PROFITABLE GROWTH WITH DATA

A number of insurers are already channeling the insights obtained from proliferating data volumes to accelerate their growth. They are better able to engage customers, cater to granular customer segments, reduce churn, and assess risk. Equipped with a more nuanced view of risk, they are able to enter niche markets, as well as price newly emerging risks more accurately and competitively.

In our survey of over 500 insurance executives at 204 insurers (with >\$1bn in annual revenue), we found that insurance organizations are using data to: 1) develop new solutions; 2) create value-added services to engage customers; and 3) enable unique insights into risk assessment and pricing. Powered by data, over 40% of insurers are entering new markets, shifting from protection to prevention, and revisiting outdated actuarial assumptions. Similarly, around 43% are using real-time data to update actuarial models, while around a third are using data to model new risks.

DATA INITIATIVES ARE SPREAD ACROSS THE INSURANCE VALUE CHAIN

Insurers have undertaken scaling of their data initiatives almost equally across three key areas: 1) sales and distribution; 2) underwriting, pricing, and risk management; and 3) operations. Use cases in other areas, including product/solutions development and customer services and engagement, have a low level of scaling. To gain maximum impact, insurers need to focus on the most highly scaled and highly impactful use cases (as identified by our survey), such as data-driven claims processing or management, dynamic risk scoring, and data-driven customer segmentation and targeting.

Insurers are already making targeted investments in data capabilities. Around 43% of insurers have modernized and upgraded their risk algorithms in the past two years. As a result, around 39% of insurers were able to describe their risk selection and pricing as “fact-based and data-driven.” Around 35% of insurers have gained competitive advantages from their investments in data and analytics, such as growth in premiums written and improvement in loss ratios.

DATA-POWERED INSURERS ARE RACING AHEAD

We found that only 18% of insurance organizations had the tools, technologies, people, processes, skills, and culture in place to derive full value from the growing volume of data to which they had access. We call such organizations “Insurance Data Masters.” We have identified three areas where these Data Masters are markedly different from their peers:

- **Centralized governance backed by distributed implementation:** More than nine in ten (92%) Data Masters have a centralized governance body, in the form of either a center of excellence or a centralized team comprising both IT and business personnel. This compares to just six in ten of their peers. A centralized data-governance team ensures interoperability and consistent focus of prioritization and execution.
- **Collaboration with InsurTechs:** While Insurance Data Masters regard InsurTechs as a threat, this does not preclude the two entities from collaborating – more than six in ten (62%) partner regularly with InsurTechs, compared with just 22% of their peers.
- **Insurance Data Masters employ open data and platforms to their advantage:** Open data and business models allow for the secure exchange of data, task delegation, and sharing of business functions among partners, among them InsurTechs, service/data providers, channel partners, technology providers, and other insurers in the ecosystem. Nearly all Insurance Data Masters have created open application programming interfaces (APIs) to allow external parties to access their proprietary data, compared to only 36% of their peers.

HOW CAN INSURANCE ORGANIZATIONS ACHIEVE DATA MASTERY?

Below are four recommendations to ensure insurance organizations work towards a cohesive strategy to achieve Data Mastery:

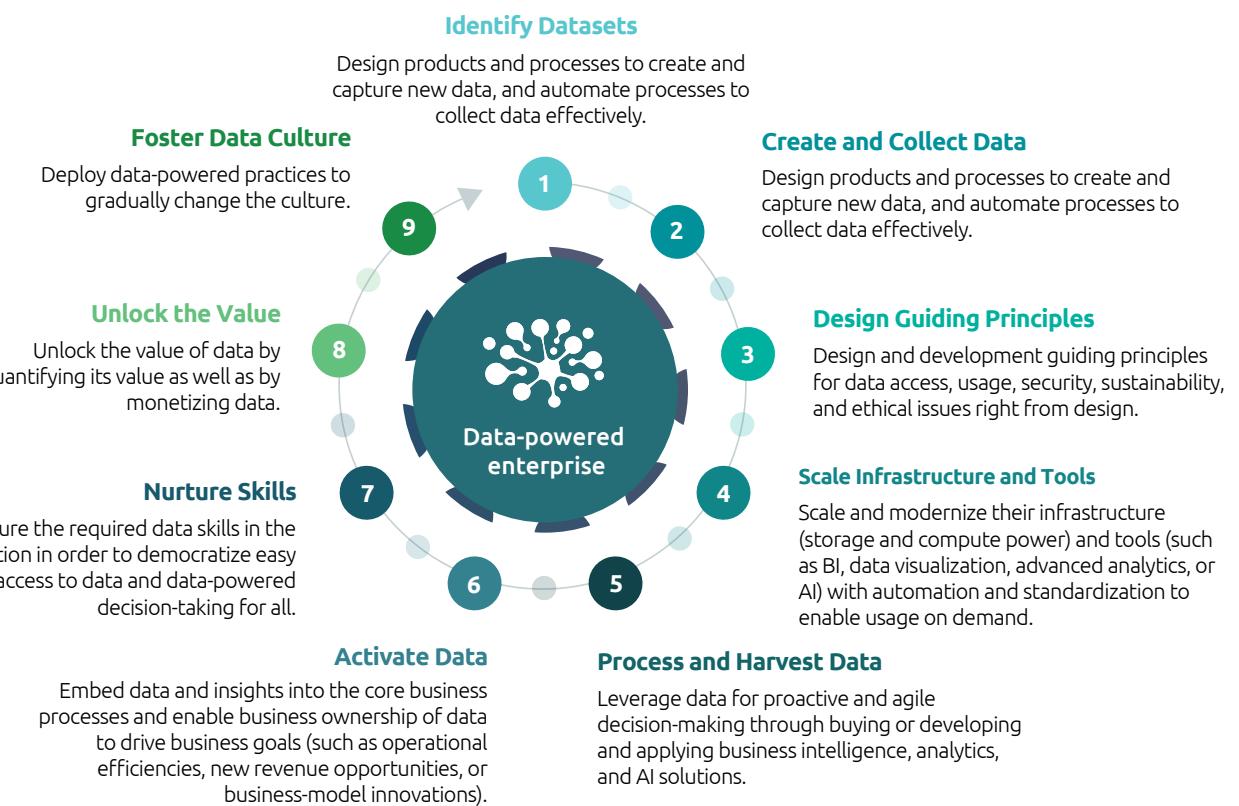
- Build the infrastructure to allow rapid implementation of data-derived insight
- Establish an appropriate operating model to scale data-driven use cases
- Foster a strong data culture across the organization
- Orchestrate an open-data ecosystem

DEFINITION

We define a data-powered enterprise as an organization that can create, process, and use data proactively to fulfill its corporate purpose, achieve its business objectives, and drive innovation. Here, "data" is the digital representation

of an organization's historical existence and current market presence, encompassing its processes and interactions with consumers, its ecosystem, and exogenous market forces.

Figure 1 The data-powered enterprise leads in all of the below aspects:



Source: Capgemini Research Institute analysis.

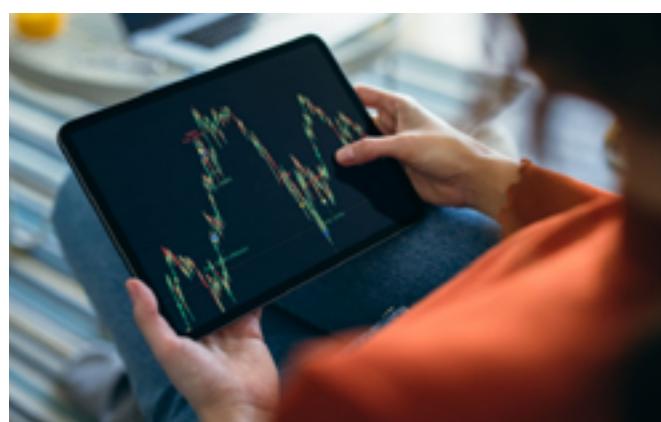
HOW ARE INSURERS DRIVING PROFITABLE GROWTH WITH DATA

01

Data has long been a competitive differentiator for insurance organizations. Some insurers are able to channel the insights obtained from proliferating data volumes to accelerate their growth, through improved customer engagement, segmentation, churn reduction, and more accurate risk assessment. With a more nuanced view of risk, they are able to cater to new segments, as well as price new risks more accurately and competitively.

For example, while climate change is a global phenomenon – and, therefore, a global risk – its regional distribution is uneven due to local factors such as flooding as a consequence of extremely heavy rainfall. Companies can target underserved households in such areas and close the insurance gap.

In this report, we present the key findings from our survey of over 500 insurance executives at 204 insurers (with >\$1bn in annual revenue) in terms of how insurance organizations are transforming themselves.



1.1 THROUGH A BETTER UNDERSTANDING OF RISK, DATA IS HELPING INSURERS DEVELOP BETTER SOLUTIONS AND SERVICES

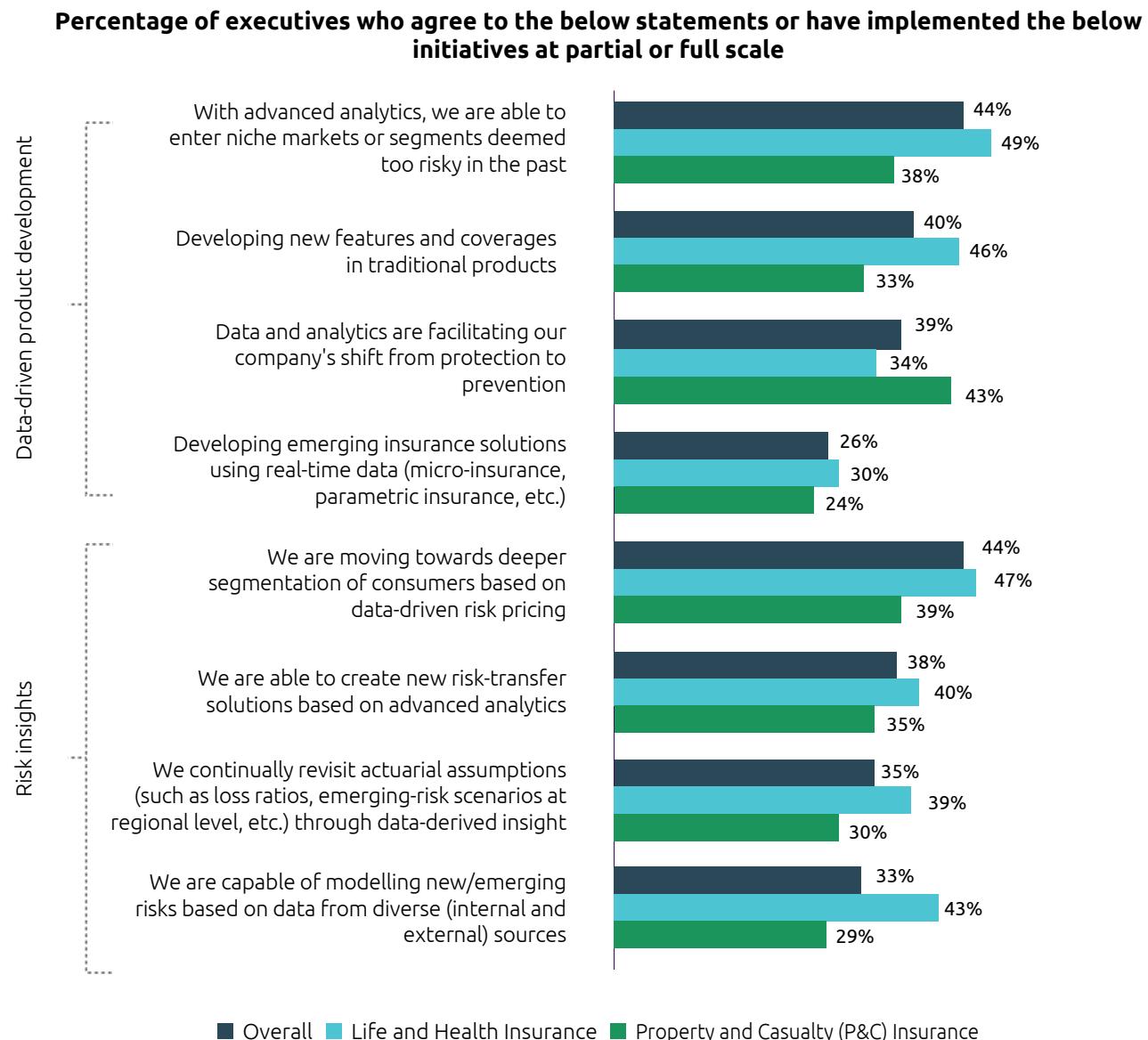
A sizeable number of insurance organizations are focusing on data-powered growth:

- Over 43% use data-driven strategies to expand risk appetite and enter niche segments.
- 39% of insurers have used data to design new products and solutions, as well as developing new features and extending the coverage of traditional products.
- In the current volatile risk environment, insurers struggle to provide the best solutions to customers in a timely fashion. Around 43% of them are using real-time data to update actuarial models; around a third can use data to model new risks.

Insurers are switching gears to drive growth using data in the following three ways:

1. Data-enabled solutions development
2. Value-added services, powered by data
3. Data-driven risk insights and pricing

Figure 2 Data is reshaping insurers' approach to new markets and old assumptions



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=300 business executives and 210 technology executives across 204 insurance organizations.

1.1.1

DATA IS DRIVING NEW SOLUTIONS FOR INSURERS

"Up to now, we've been using AI and data on many organizational-effectiveness metrics to focus on the bottom line. I would rather focus on the new business they could bring in," states Frank Desvignes, global head of Open Innovation, AXA Next. As detailed in Capgemini's World Insurance Report 2021, this year 47% of insurers have prioritized innovation to implement new business models. Japanese property and casualty insurer, Tokio Marine, has developed an AI-driven medical-insurance product for seniors with chronic health conditions, who have historically struggled to attain underwritten insurance.²

Increasingly, insurance carriers are using data and analytical models to guide customers to the product that is right for them. For example, AIA China offers a modular protection product that allows customers to tailor coverage to their specific needs. The company's agents help customers to pick out their ideal product from thousands of possible coverage combinations – all supported by data analytics.³

1.1.2

INSURERS ARE USING DATA TO DRIVE VALUE-ADDED SERVICES AND BUILD CUSTOMER LOYALTY

Insurance is typically a "low-touch" product, with minimal contact between carrier and customer. Offering value-added services helps companies build customer intimacy and thereby drive loyalty. As such, insurers are increasingly pivoting from standardized plans to modular solutions, customized to the needs of the individual.

New platforms are emerging based on business strategies that revolve around capturing first-party data to engage customers, and subsequently provide them with a seamless experience. The most popular datasets are derived from digital health and wellness ecosystems, which act as a source of new customers and revenue.

- UK-based Prudential, via its health and wellbeing app, Pulse, generated 2.2 million leads for agents, successfully generating offline sales. It represented around 10% of its annual premium equivalent, where Pulse is available. Moreover, the average customer of Pulse is 10 years younger than the average customer of the company as a whole, signifying intrinsic potential for growth.⁴
- Approximately 11% of Hong Kong-based AIA's 2018-20 new business value was generated by products integrated with Vitality, its personalized health and wellbeing program. In the US and Asia, it reported higher retention levels, larger ticket sizes (for example, in Thailand, AIA Vitality members



“

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.....
Frank Desvignes
global head of Open Innovation,
AXA Next

purchased twice the number of riders than did non-members), and increased cross-sell rates where partners had integrated its proposition into their offering compared with those that did not.⁵

- Customers of China's Ping An who use services from its healthcare ecosystem held 3.2 times more contracts than the customers who did not use its healthcare services. Of the company's 223 million retail customer base, nearly 62% used the company's healthcare ecosystem services.⁶

Using IoT to enhance customer value:

In the property and casualty (P&C) segment, insurance carriers are using IoT data to provide value-added service and reduce claims.

India-based ICICI Lombard General Insurance provides data-driven marine-transport services in addition to its standard plans. It offers services such as comprehensive digitization of logistics operations and monthly analytics reports, with transporter and route optimization, and monitoring of carbon footprints.

Lombard has also launched environment-monitoring services for temperature-sensitive cargo for the pharmaceutical industry, to facilitate the movement of vaccines. Multiple built-in triggers call immediate attention to changes in the conditions of the cargo, mitigating potential losses. Such innovations led to a one percentage point year-over-year increase in market share in marine insurance to 14.9% in the year ending March 2020.⁷

Similarly, Zurich Insurance Group uses IoT sensors to monitor the "health" of customer machinery, as well as structural health of insured buildings, especially those in earthquake-prone areas. The company uses sensors to gauge levels of fire-related risk and alerts customers to high readings through an app. *"Our customers can see what they need to do to mitigate the risk,"* explains Ericson Chan, chief information and digital officer, Zurich Insurance Group. *"[The app] also has a self-assessment capability so that it's like having a risk engineer*

on-site all the time ... This is how we engage our customers differently using technology," he enthuses.⁸

Munich Re has developed an innovative business model for the sheet-metal-processing industry using IoT technology: IoT sensors enable customers to use a full-service laser-cutting machine without having to buy or lease any equipment. Customers pay a previously agreed price for each cut sheet-metal part.

Munich Re finances the machine and provides insurance against any production downtime. The IoT service provider, relayr, a subsidiary of Munich Re, provides the required data analysis. Other partners include a machine supplier and a steel distributor, completing the supply chain.⁹

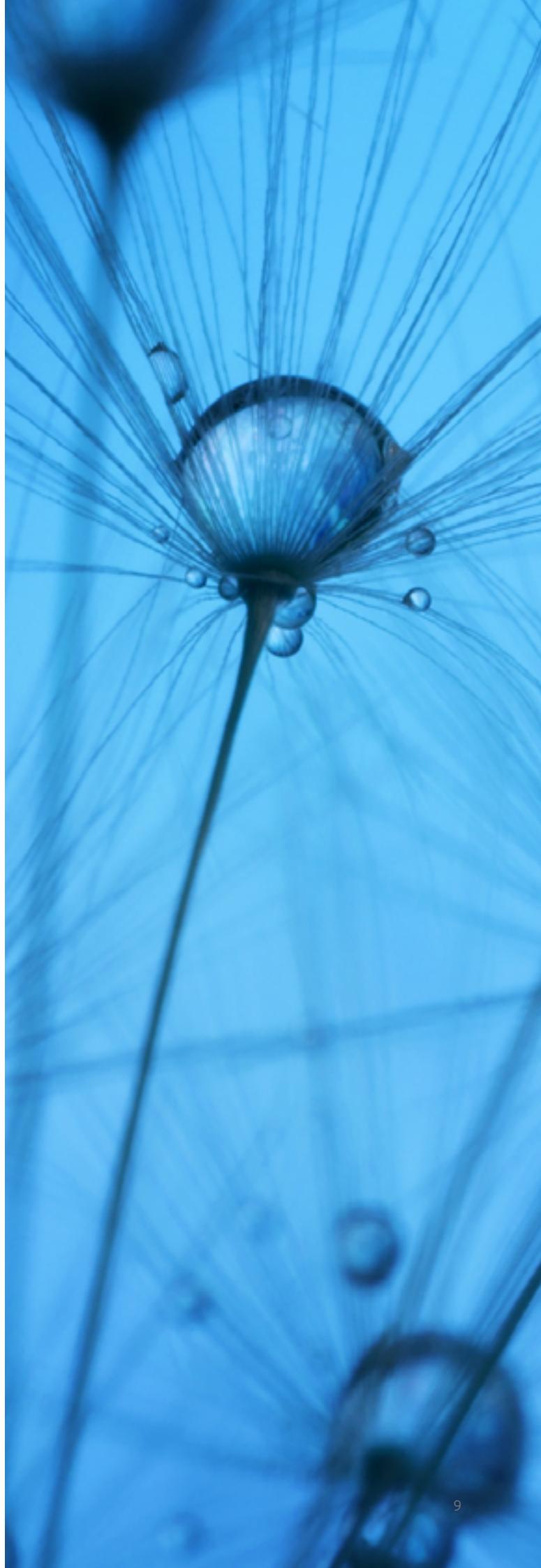
1.1.3 DATA IS ENABLING UNIQUE INSIGHTS INTO RISK AND ITS PRICING

To better understand, manage, and price risk has long been the pot of gold at the end of the rainbow for insurers. Companies are making significant progress towards finding it by using streaming data to adjust their risk perceptions and respond to changes in the market.

The Travelers Companies, based in the US, is a case in point. It has enhanced standard vendor-provided catastrophic-risk models with its own data-driven insights to develop a "peril-by-peril" risk model. For example, in the property and casualty (P&C) segment, the company can analyze property risk using variables such as complex roof characteristics, tree and brush density, and location intelligence down to "parcel" level (data relating to an individual address), helping inform risk selection and terms and conditions of home-insurance policies.¹⁰

Similarly, Tryg A/S, a Scandinavian insurance company, reviews customer data continuously in order to detect an evolution of risk parameters. In 2021, it could identify that 0.6% of its portfolio needed to be reassessed; this segment of customers showed an unfavorable risk behavior, skewing their policies towards the category of unprofitability. Based on this insight, the company increased price upon renewal to compensate for increased risk.¹¹

Using telematics, US-based Allstate created Arity, which turns mobility and driver data into meaningful behavioral insights. The company is able to generate enhanced risk insights as well as sell revenue streams to other insurers through Telematics-as-a-Service (TaaS). "*We track 27 million connected drivers with pretty good analytics on all that. We generated over 800 trips per second, and we have over 0.5 trillion miles, which gives us the ability to do a variety of things by TaaS. [TaaS also helps] me figure out how to price auto insurance, [and] how to market to the 'right' drivers,*" explains Thomas Wilson, President and CEO, Allstate Corp.¹²



AROUND A THIRD OF COMMERCIAL LINES INSURERS USE DATA TO IMPROVE PRODUCTS AND CUSTOMER EXPERIENCE

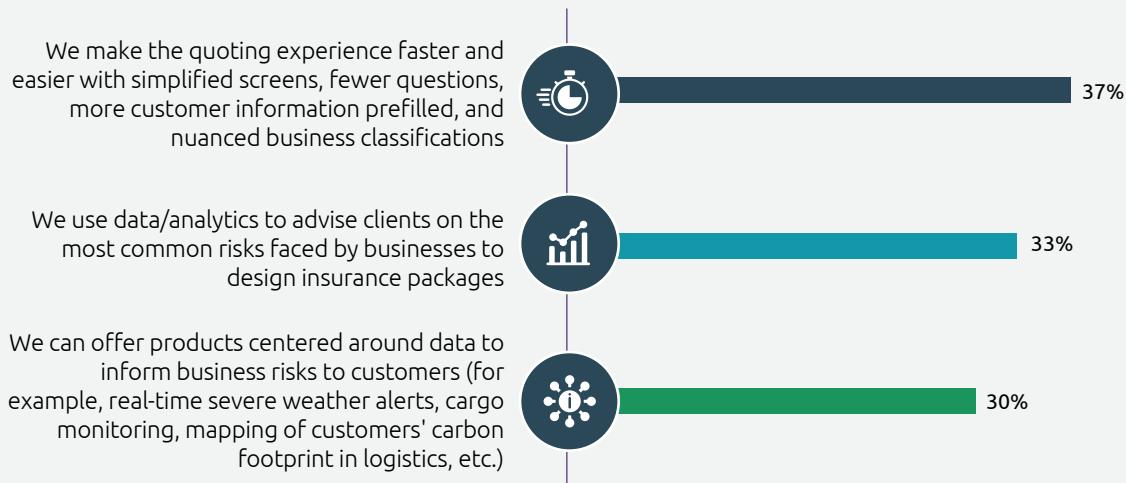
Commercial lines insurance customers (businesses that require coverage against potential losses that they could not afford to cover on their own) expect more closely customized offers to enable them to prevent losses, mitigate impact, and allow their businesses to recover quickly when loss events do

occur. Our survey revealed that a third of commercial lines insurers have invested in data-driven customer products and experiences, such as using data/analytics to provide risk management solutions and design insurance packages.

Commercial lines insurers are launching organization-wide programs to make themselves more data-driven. UK-based specialist insurance and reinsurance marketplace Lloyd's has recently launched its data and digital transformation. It focuses on creating an open and flexible digital ("digital spine") and data infrastructure ("data store") that supports its key activities, such as insurance placement and claims adjustment and processing.¹³

Figure 3 Data analytics have widened the offerings of commercial lines insurers

Percentage of executives who agree to the below statements



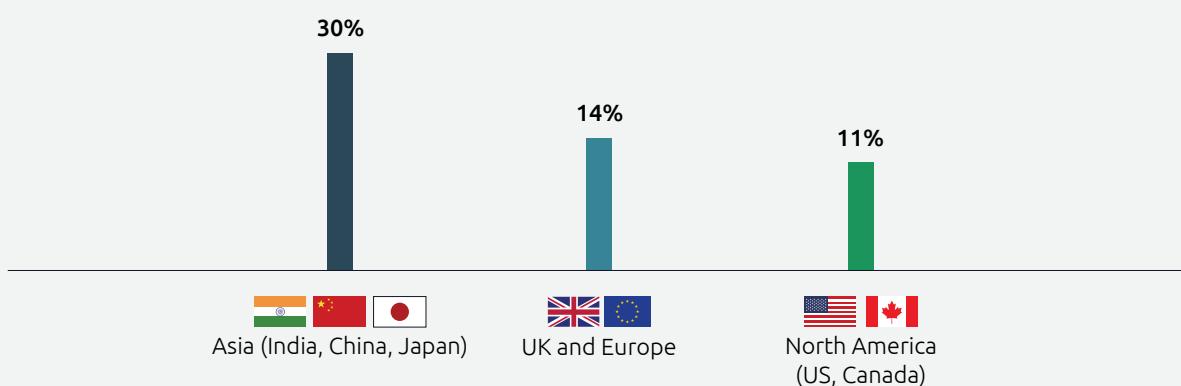
Source: Capgemini Research Institute, Data Mastery in Insurance survey, September-October 2021, N=273 P&C and reinsurance executives.

Geographically speaking, we found that Asian insurers have reached more advanced stages of data maturity, with mainstream or transformational adoption of data initiatives, than their counterparts in North America, the UK, and Europe, where insurers were mostly in less mature piloting and early-implementation stages.

One of the reasons for APAC to lead in data maturity is probably due to its mobile-first culture, and relatively less stringent regulations around customer data collection and processing. North American companies, too, excel in their ability to process rich historical data around different types of risks.

Figure 4 Asian insurers take the lead in data maturity

Percentage of organizations that rate themselves highly mature in AI/ML, data science, and advanced analytics - by region



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=204 insurance organizations.

30%

of organizations in Asia (India, China, Japan) rate themselves to be highly mature in AI/ML, data science, and advance analytics.

1.2

DATA INITIATIVES ARE SPREAD ACROSS THE INSURANCE VALUE CHAIN

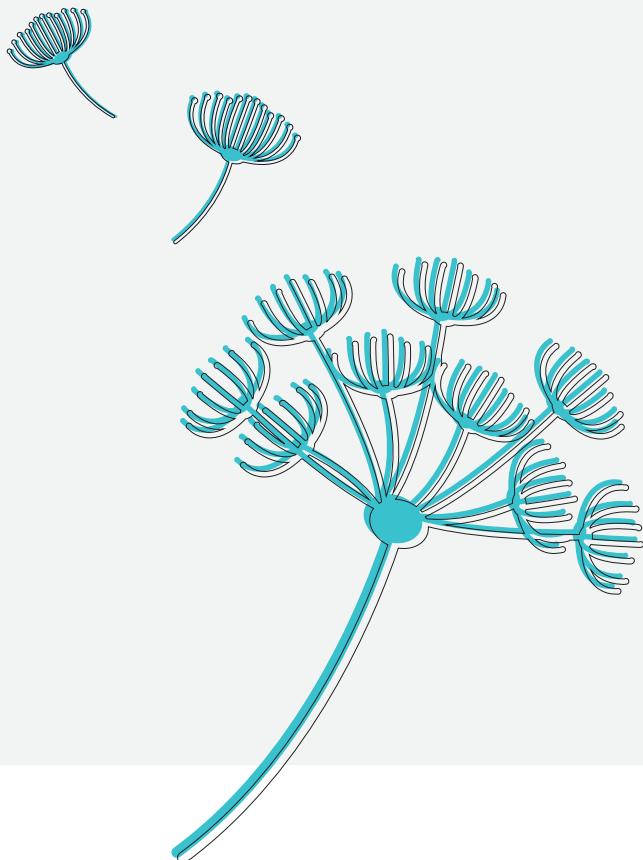
Insurance companies have traditionally focused their data initiatives on underwriting, cost optimization, automation,

fraud detection/prevention, and risk controls. Of late, due to the COVID-19 pandemic, they have hastened to shift customers across to digital channels via digital onboarding, marketing, lead generation, and product recommendations, among other methods.

MANULIFE HAS USED AI TO DERIVE INSIGHT FROM 100% OF CUSTOMER INTERACTIONS, UP FROM 2% PREVIOUSLY

Canada-based insurance provider Manulife has used data to evolve from the more rudimentary Net Promoter Score (NPS) surveys, which sampled less than 2% of its customers, to using AI models to ingest and analyze 100% of its contact-center interactions in English.

Essentially scaling from around 500,000 survey responses to generating insights from 11 million interactions annually allowed Manulife to derive customer feedback that was more extensive in scope and, therefore, an accurate reflection of the collective experience of its customer base. It is using these insights to bring improvements in areas such as sales-lead scoring, intent detection, and automated underwriting.¹⁴



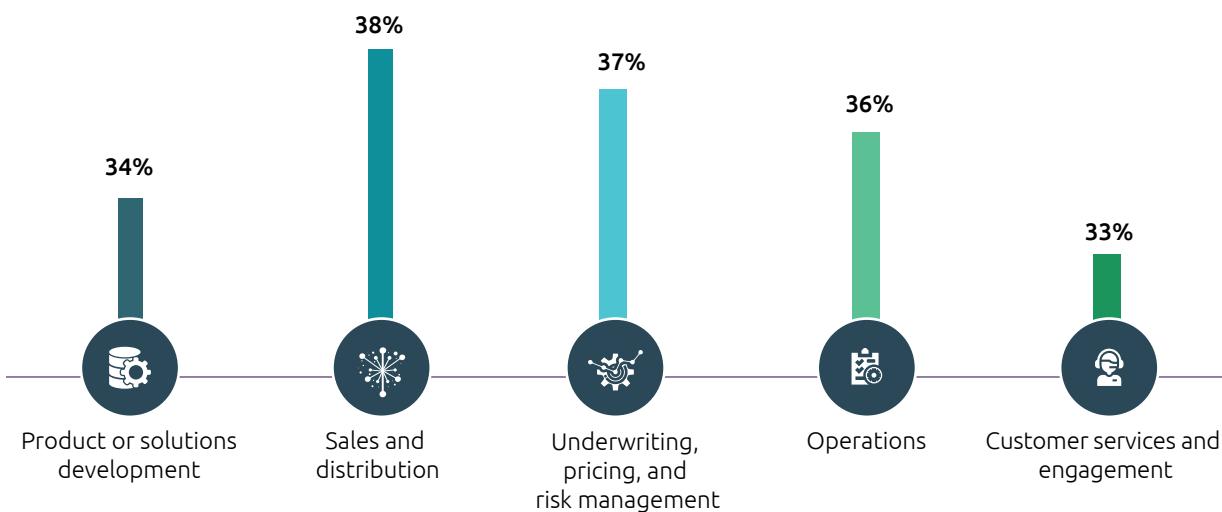
According to our survey, insurers have undertaken scaling of their data initiatives almost equally across the following three areas: 1) sales and distribution; 2) underwriting, pricing, and risk management; and 3) operations.

"We are incorporating AI across the value chain, from running models of existing customer data and data of our partners to allow greater value extraction and deeper analytics, to integrating risk and persistency models in our onboarding

journeys. Also, areas in customer service such as intent prediction, speech analytics, and photo liveness [detecting false biometric images] are examples of embedding AI in our processes," confirms Manu Lavanya, director and chief operations officer, Max Life Insurance.¹⁵ Use cases in other areas, including product/solutions development and customer services and engagement, to date, have not been scaled to the same extent.

Figure 5 Insurers have focused data initiatives on improving sales and distribution, underwriting, and operations

Average percentage of executives implementing use cases at scale



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September-October 2021, N=300 business executives and 210 technology executives in insurance.

Next, we analyzed 36 data-driven use cases to determine which of them had a high impact on business metrics, as well as which had been highly scaled by insurers (see Figure below). The following ten use cases fell in the upper-right quadrant, indicating that they are highly scalable, highly impactful, and are likely to provide the greatest benefits to insurers:

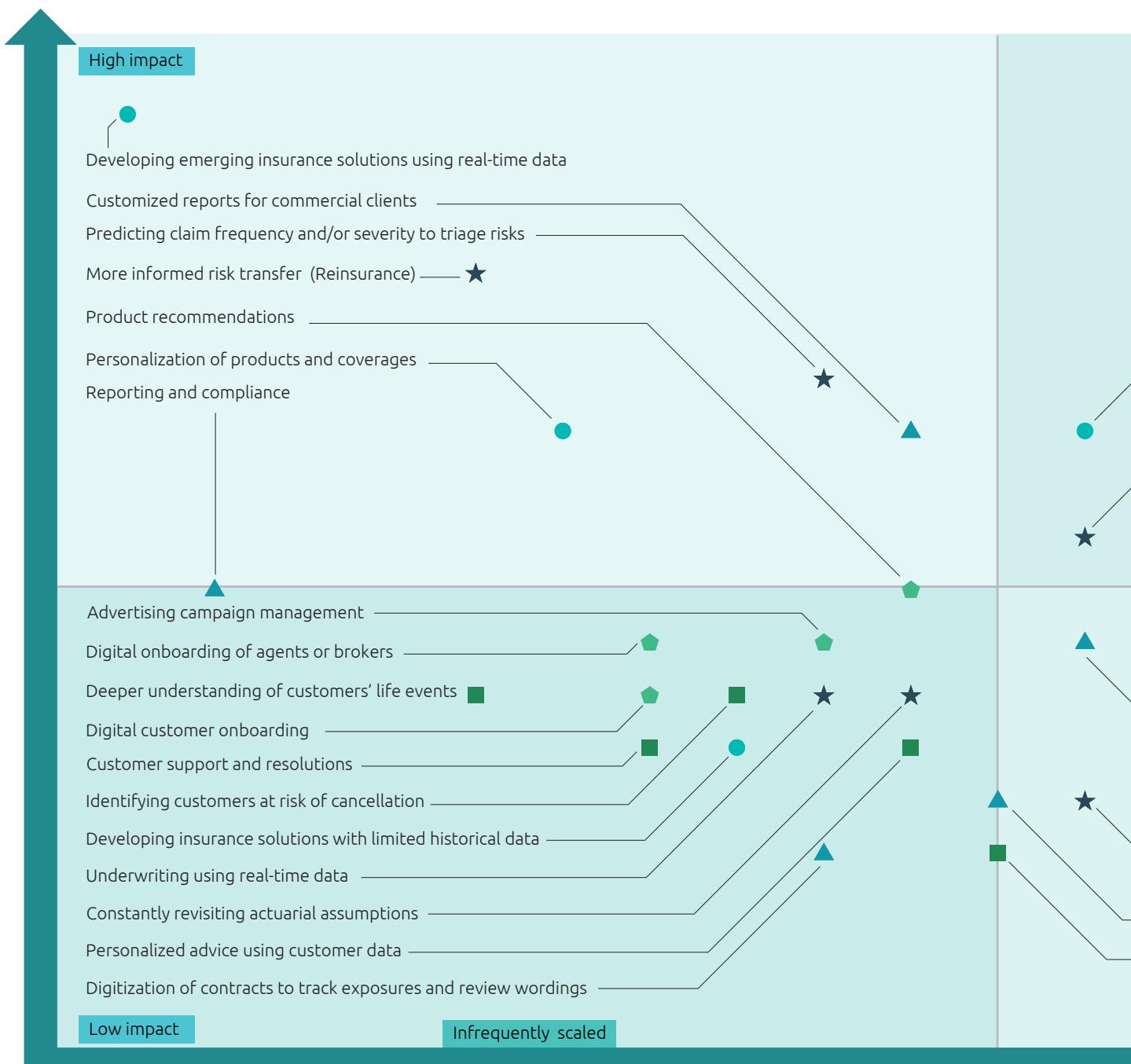
- Data-driven claims processing or management
- Dynamic risk scoring

- Customer segmentation and targeting/lead generation
- Launching products for previously untapped segments
- Accurate risk pricing
- Developing new features in/extending coverage of traditional products
- Automated real-time underwriting
- Omnichannel integration
- Live monitoring and modeling of risks
- Cross-selling of solutions using digital data

Figure 6

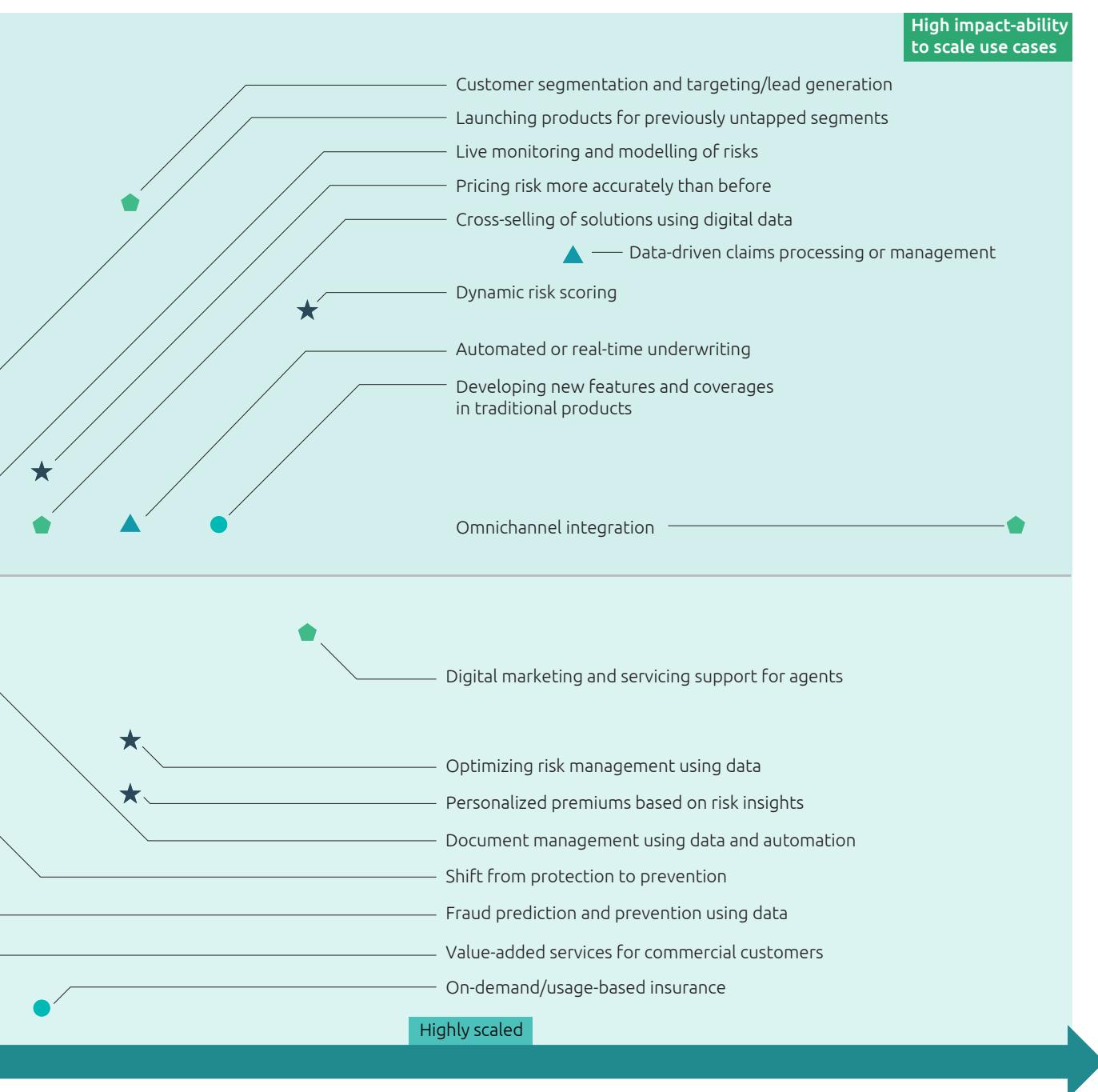
High-impact and highly scaled use cases center around risk assessment and customer experience and segmentation

Ability to scale and impact



- Products or solutions development
- Customer services and engagement
- ▲ Operations
- ★ Underwriting, pricing, and risk management
- ◆ Sales and distribution

of use cases in insurance

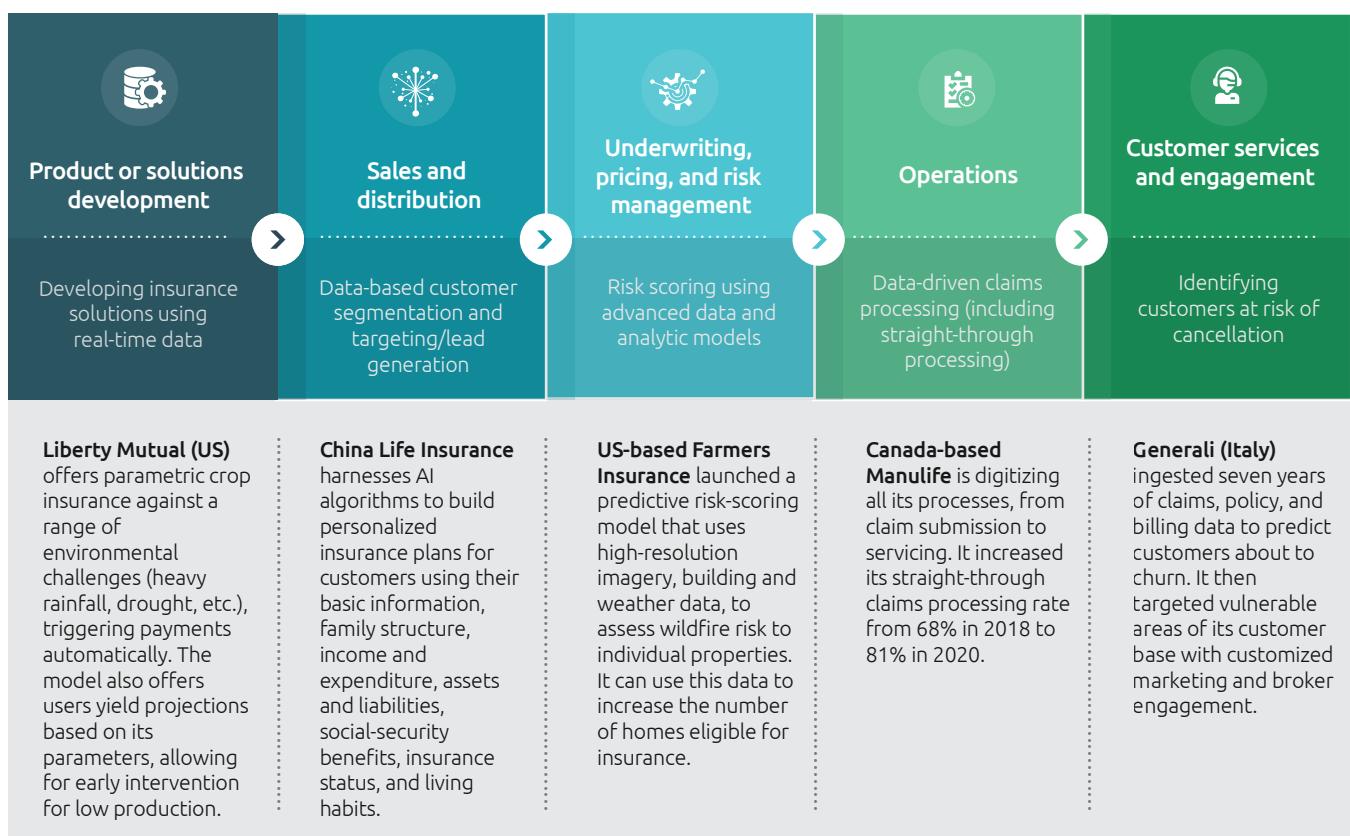


Source: Capgemini Research Institute analysis; Data Mastery in Insurance survey, September–October 2021, N=510 insurance executives.

* 'Impact' refers to the magnitude of the impact of a use case upon a business metric, as rated by our respondents.
* 'Ability to scale' indicates how often a use case is scaled by our survey respondents.

Below are the examples of the high-impact use cases, whether scaled or not, for each component of the insurance value chain.

Figure 7 High impact use cases in insurance for each part of the value chain



Note: 'Straight-through processing' implies automated processing with no manual intervention.

37%

of executives on average are implementing use cases at scale for underwriting, pricing, and risk management using data initiatives.

1.3 ORGANIZATIONS ARE MAKING TARGETED INVESTMENTS IN DATA

Some insurers are investing in modern risk algorithms and digital interfaces to visualize data instantaneously at the point of decision, and ingesting a wide range of data sources:

- Around 43% of insurers have modernized and upgraded their risk algorithms in the past two years. As a result, around 39% of insurers were able to describe their risk selection and pricing as fact-based and data-driven.
- Similarly, a third of insurance executives stated that their actuarial teams have ready access to all the data they need to price risks accurately, while around 35% of insurers can model new or emerging risks based on data from diverse sources.

By gathering and processing data from disparate systems (claims, pricing, underwriting, policy administration, etc.) in one location, insurers can develop a 360-degree view of their portfolios and thereby improve their underwriting efficiency and the accuracy of their insights.

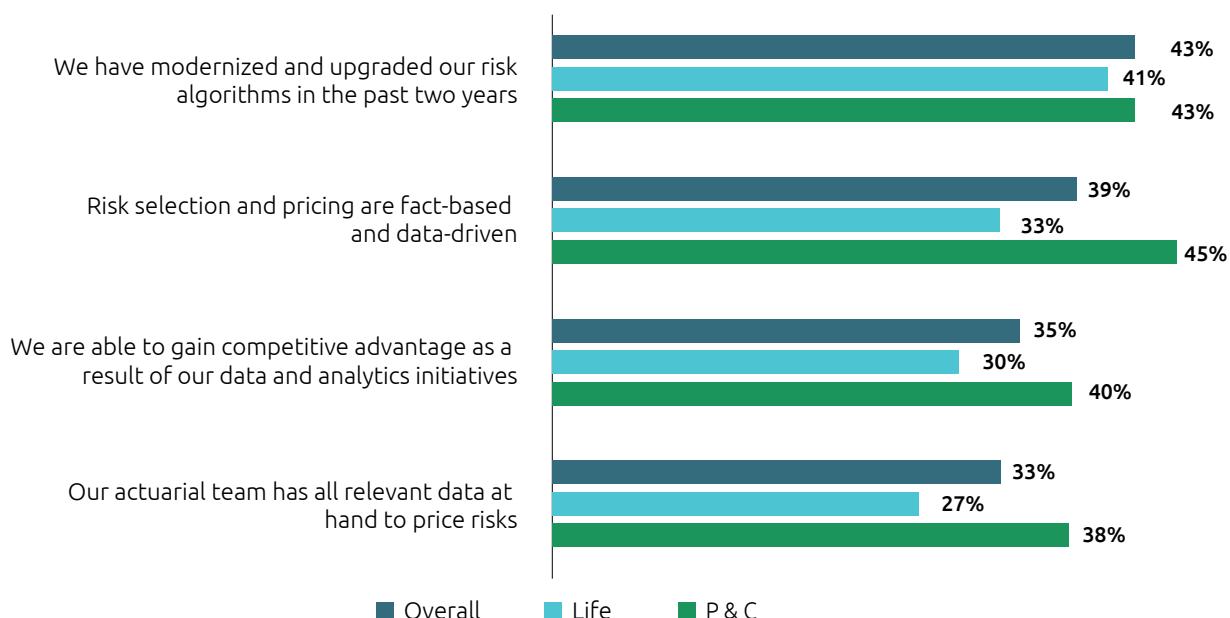
Bermuda-based Everest Re is a case in point. Juan Carlos Andrade, CEO and director, explains: *"Our global underwriting platform ... puts all of our underwriting departments under one system. This provides much cleaner, more consistent data and more efficient processes, and enables easier sharing of talent across departments. We're building out a data-analytics platform across the whole of the enterprise. This will enable data-driven decision making within the reinsurance division. [We] will link all of our underlying systems, including underwriting, pricing, claims, and document management. [With] this, underwriters will have a complete view of their portfolios, all in one place."*¹⁶

Around 35% of insurers have gained competitive advantages from their investments in data and analytics, such as growth in premiums written and improvement in loss ratios. For example, Aviva (UK) incorporated AI and machine learning into all of its pricing models and automated them to develop models twice as quickly as before. This has allowed it to increase the frequency of model refreshes, meaning it can spend more time improving the quality of model inputs and analyzing and understanding the outputs.¹⁷

Figure 8

Almost 40% of organizations are using advanced data and analytics initiatives to understand consumers, price risk, and offer new solutions

Percentage of executives who agree to the below statements



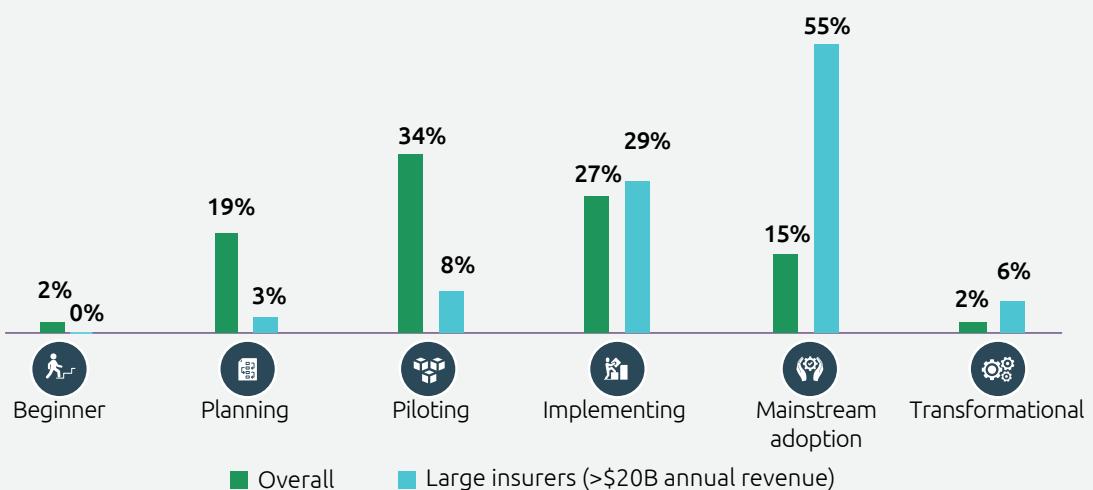
Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=300 business executives and 210 technology executives in insurance.

LARGE INSURERS AND REINSURANCE COMPANIES ARE MORE DATA-DRIVEN

Figure 9

Almost 61% of large insurers have gained mainstream adoption or reaped transformational benefits from their data initiatives, compared with only 17% of small insurers

How do you rate your organization's overall AI/ML, data science, and advanced analytics maturity in the company?



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=300 business executives and 210 technology executives in insurance.

There is a stark contrast between the scaling of data initiatives by insurers of different sizes. While 61% of insurers with an annual revenue of over \$20 billion have reached mainstream or transformational adoption, only 17% of those with annual revenue of between \$1 billion and \$20 billion have done so. One significant reason for this is underinvestment by smaller firms in technology modernization; around 45% of smaller insurers face challenges such as legacy

systems and monolithic architecture, compared with only 12% of larger insurers.

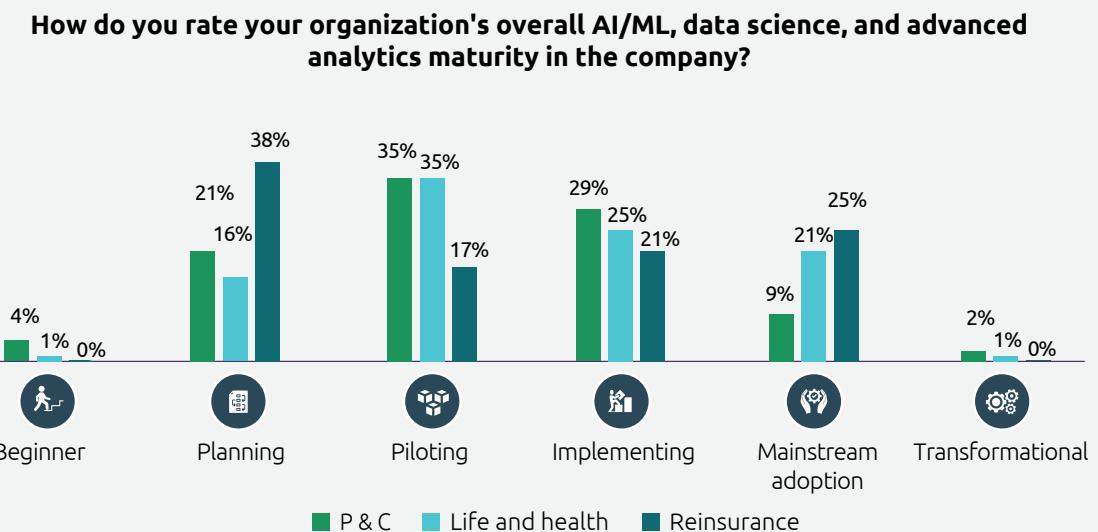
Large insurers have recognized the importance of building the right technology foundations, including modernizing their IT infrastructures, breaking up data silos, installing data security, and bringing strategic commitment to data initiatives. However, as our survey indicates, an organizational lack of trust in data is one of the biggest challenges in scaling.

In terms of sub-segments, more reinsurance executives stated being in advanced stages (mainstream or transformational) of data-driven implementations than their peers in other segments.

However, looking at all "implementers" and above, life and health insurers take the lead – 48% of them are in implementing or above stages, compared with 46% and 40% of reinsurers and P&C insurers, respectively.

Figure 10

Almost one in four reinsurers have gained mainstream adoption or reaped transformational benefits from their data initiatives*



***Definitions of the different stages of data implementation:**

Beginners: Lack roadmap to implement AI initiatives.

Planning: Evaluating the value that AI can create but have not launched a pilot.

Piloting: Have launched AI pilots/proofs of concept (PoCs) but these are not yet deployed in production.

Implementing: Have deployed a few use cases in production, on a limited scale.

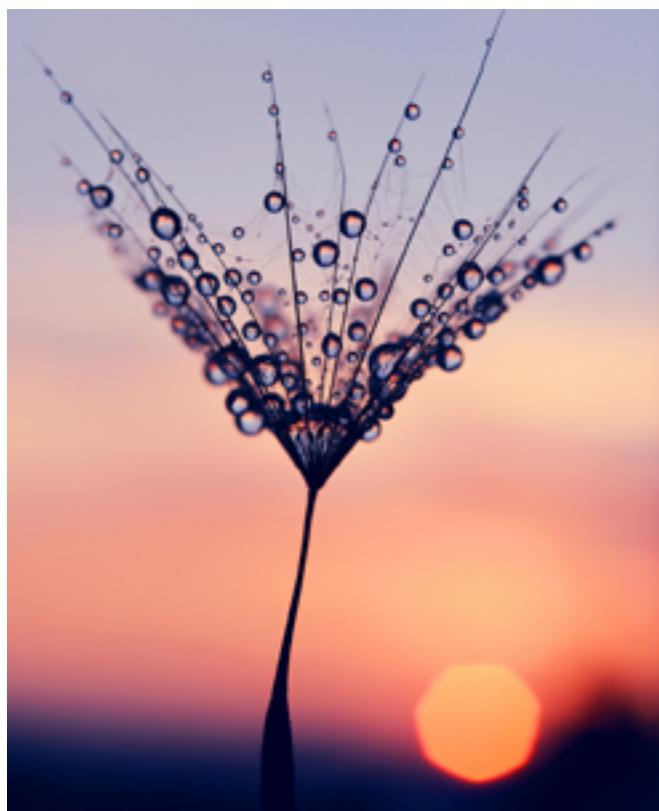
Mainstream adoption: Have successfully deployed use cases in production and continue to scale more within multiple business teams.

Transformational: Have gained a competitive advantage in business, such as greater market share, improved business metrics, etc., through the use of AI/ML, data science, and advanced analytics.

DATA-POWERED INSURERS ARE RACING AHEAD

02

To better understand the current stage of data maturity of the insurance industry, we analyzed and scored participants' responses based on a set of questions around data ingestion, storage, governance, processing, activation, etc. Our analysis reveals that only 18% of insurance organizations combine the required technical capabilities with optimum data behaviors. We call these "Insurance Data Masters."

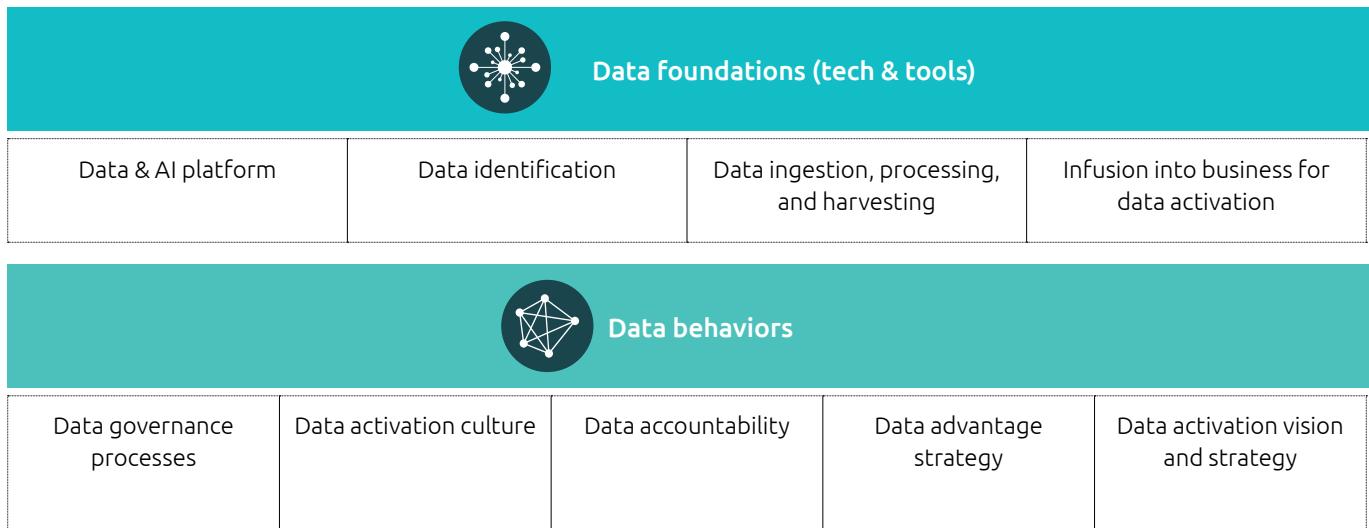


WHAT MAKES AN INSURANCE DATA MASTER?

We scored organizations on two axes: data foundations and data behaviors. Data foundations are the tools and technologies necessary for an organization to capitalize fully on its database; data behaviors are part of the "DNA" of the organization and relate to people and embedded processes, skills, and culture. Taken together, they form the basis for acquiring an understanding of the current level of maturity of the insurance industry.

A Data Master insurance organization earned **175%** higher "revenue per employee and was **63%** more profitable than average insurer."

Figure 11 Assessing the data maturity of the insurance industry



Our analysis led us to formulate the following distribution of the insurance industry according to data maturity:

- Data Masters** – Have both the foundations (technical capabilities) and the culture and behaviors to support their data-driven programs. They comprise 18% of the insurance industry as represented in our survey.
- Data Laggards** – Organizations that lack either the foundation or the behaviors required to develop, support,

and accelerate their data journeys. They account for seven out of ten insurance organizations represented in our surveys.

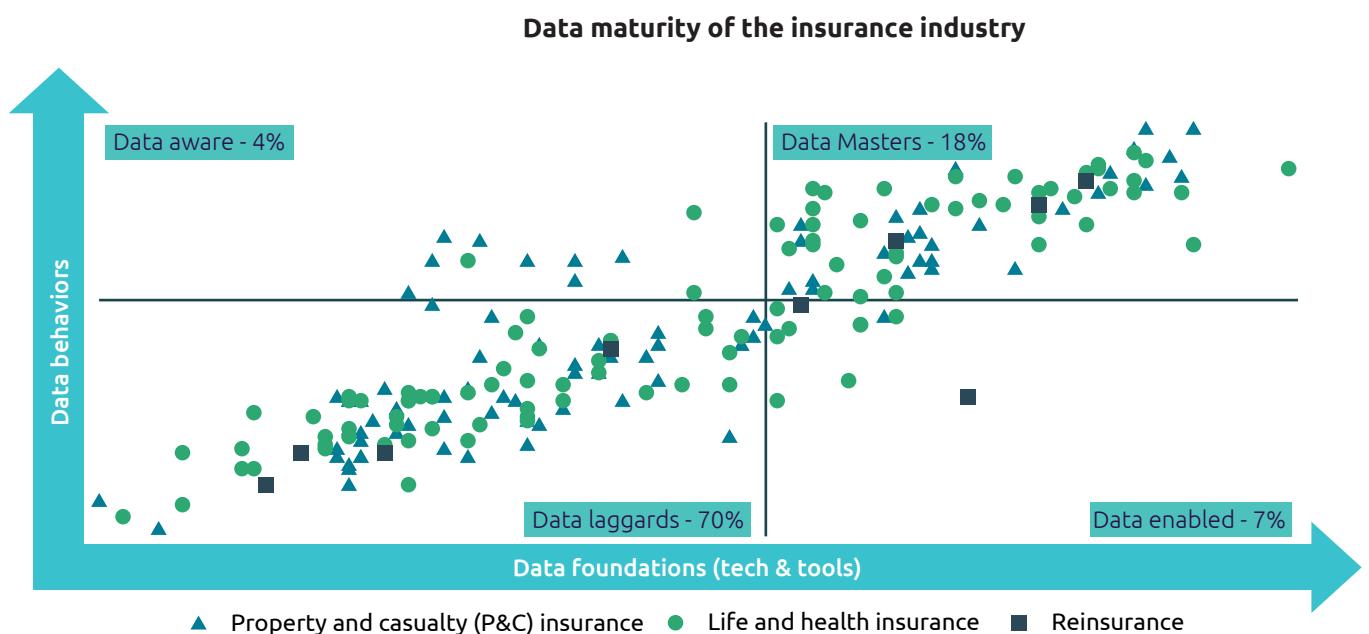
- Data-aware/-enabled** – These are a minority, together constituting 11% of the insurance industry as represented in our survey. They are experts in one of these two domains.

18%

of insurance organizations have the required technical foundations along with the culture and behaviors to successfully drive data initiatives.

China and Japan represent only
13% of our survey sample yet
constitute **40%** of our
Data Masters.

Figure 12 State of maturity of the insurance industry



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=204 insurance organizations. Percentages are rounded off to the nearest integer and may not sum to 100.

In comparison to our earlier Cross-sector research, the insurance industry overall follows the trends set by its global peers (see below).

Figure 13 The insurance industry is closely aligned with its global peers*

	Global cross-sector maturity	Insurance industry
Data Masters	16%	18%
Data-aware	7%	4%
Data-enabled	7%	7%
Data Laggards	71%	70%

Source: Peer/Global data from: Data-powered enterprises survey, August 2020, N=500 technology executives, N=504 business unit executives.

Insurance industry data from: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=204 insurance organizations.

Capgemini Research Institute analysis.

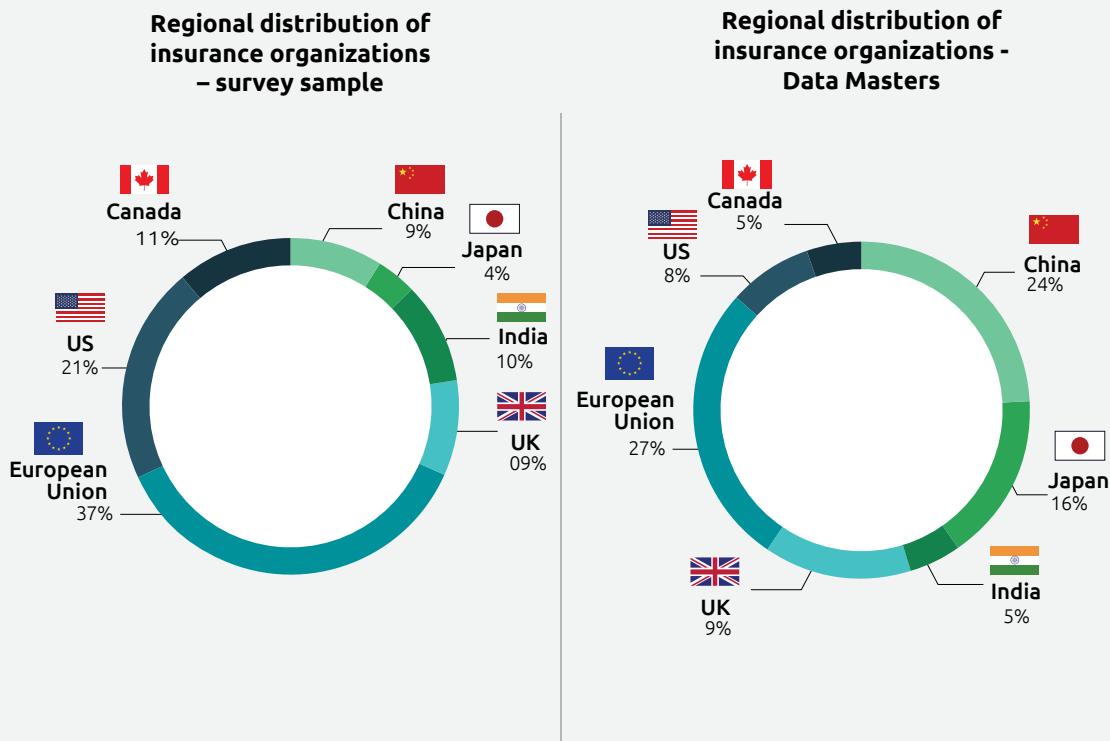
Percentages are rounded off to the nearest integer and do not sum to 100.

WHO ARE THE INSURANCE DATA MASTERS?

Geographically, insurance organizations from China and Japan constitute around 24% and 16% of Data Masters, respectively, compared with 9% and 4% of our sample population (see figure below). However,

one reason might be the small sample size of insurers in China and Japan, in our survey. Secondly, the insurance sector in China and Japan is fairly concentrated into a few large organizations. And large organizations outperform the rest in data maturity. On the other hand, countries such as the US and the UK have a wide diversity of players – both large and small, contributing to the underperformance in our survey.

Figure 14 Insurers from China and Japan lead in Data Mastery



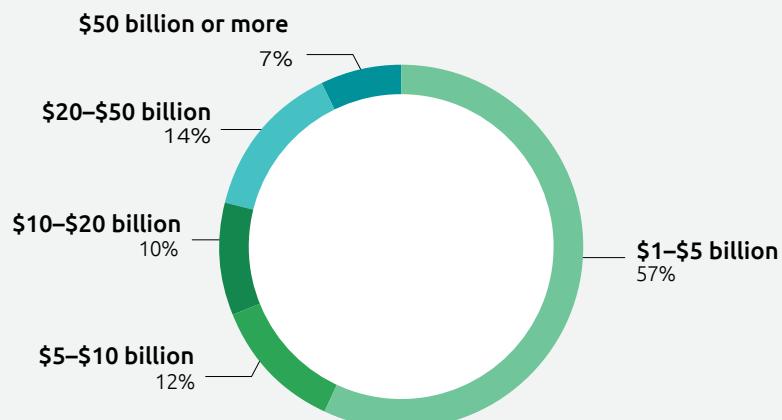
Source: Capgemini Research Institute, Data Mastery in Insurance survey, September-October 2021, N=204 insurance organizations with N=37 Data Masters.

When we look at Data Masters by size, we see that they are more likely to have annual revenue over \$20 billion. Around 78% of Data Masters were large

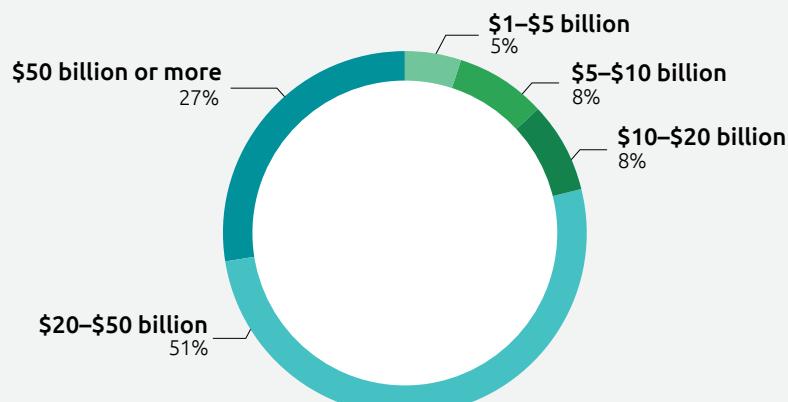
insurers, while they constituted 21% of the survey sample (see figure below).

Figure 15 Data Masters are considerably larger than their peers

Revenue distribution of insurance organizations - Survey sample



Revenue distribution of insurance organizations - Data Masters



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September-October 2021, N=204 insurance organizations with N=37 data masters.

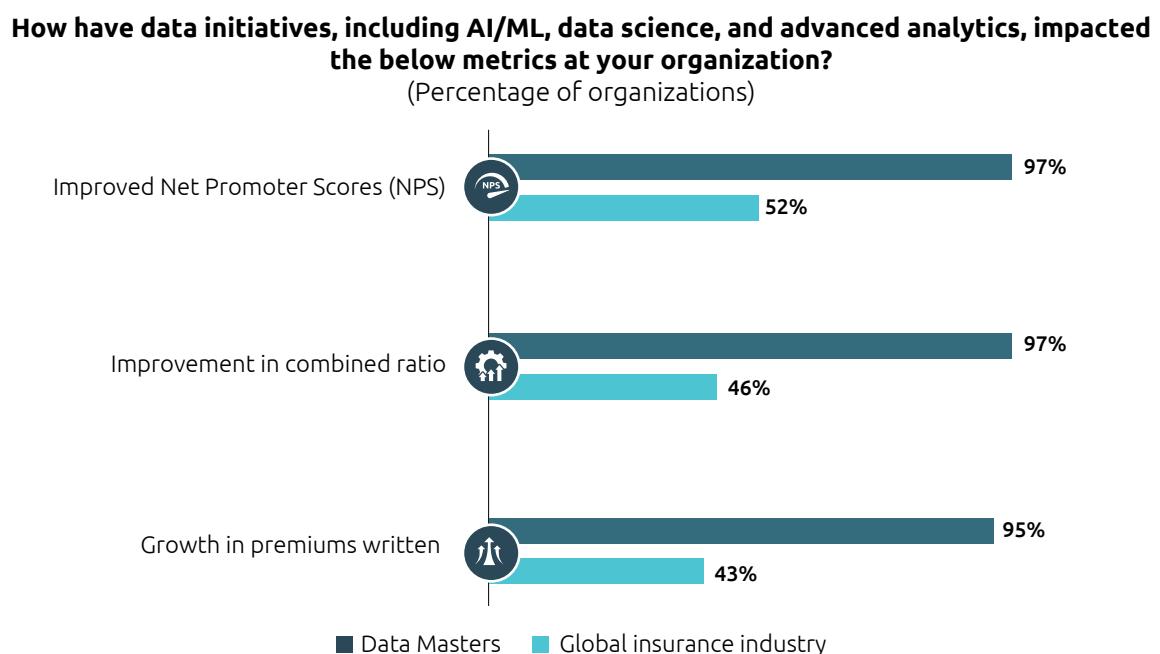
INSURANCE DATA MASTERS SEE FAVORABLE OUTCOMES FROM THEIR DATA INITIATIVES

In our previous research on *data-powered organizations*, we found that in FY19-20, a Data Master insurance organization

earned 175% higher “revenue per employee” and was 63% more profitable than average insurer.

Data Masters, with their solid data foundations and data behaviors, are more likely to see impact on their key business metrics through their data initiatives. Across the three key metrics tracked, more than 90% of Data Masters have seen improvement through data initiatives. This compares to less than half of their peers (see figure below).

Figure 16 Nearly all Data Masters gain improvement through data initiatives



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September-October 2021, N=204 insurance organizations.



LOW MATURITY OF INSURANCE ORGANIZATIONS IN DATA COLLECTION, STORAGE, PROCESSING, AND ACTIVATION

Insurance organizations need to improve processes across the data value chain – from ingestion and storage to processing and actioning data across the organization (see figure below). The scores depicted above are a composite of survey responses against each node. Across all aspects, insurers are most advanced in implementing recognized data principles, such as privacy and security by design. The industry scores lowest in modernizing data and AI platforms. This category includes having in place a scalable, agile, cloud-based data architecture; centralized data repositories; and self-service analytics capabilities.

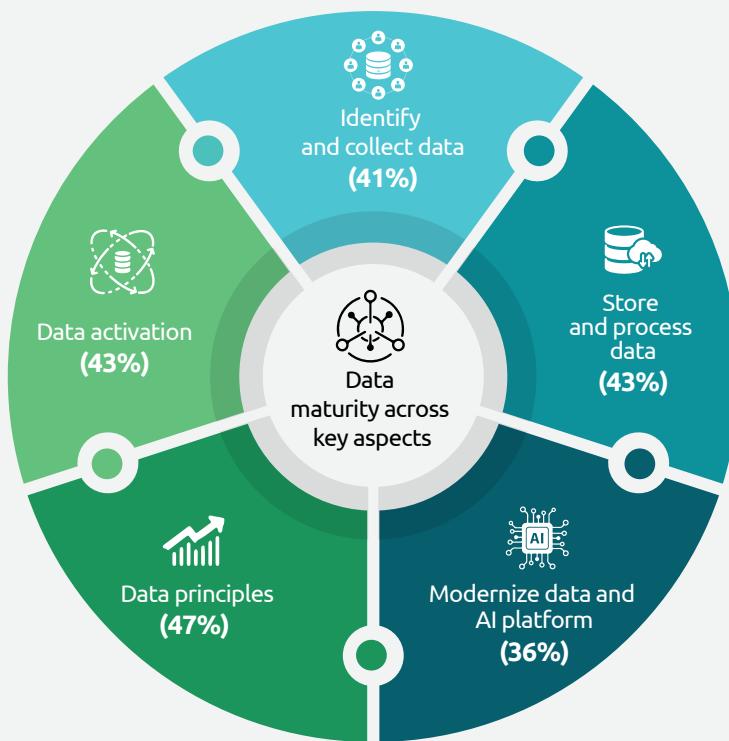
The shortcomings depicted above indicate pervasive data-quality issues at insurers, with the natural consequence of a loss of trust in data among business executives. This creates an environment in which data is often viewed with suspicion.

- Almost 61% of insurance business executives state that they do not entirely trust the data they receive.
- Data executives in insurance concur with this: only 41% of them agree that business executives trust and completely rely on the data provided for decision making.

61%

of insurance business executives state that they do not entirely trust the data they receive.

Figure 17 Insurers score low across all key aspects of data maturity*



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=510 insurance executives.

* Below are the key areas considered under each node:

1. Identify and collect data: the ability to capture structured, semi-structured, and unstructured data; develop a 360-degree picture of all data inventory; maintain updated data catalogs; implement automated data collection, etc.
2. Store and process data: the ability to analyze data dynamically to ascertain risk exposure; combine multiple types of data for analysis; store, retrieve, and analyze data at all levels; cleanse data quickly and efficiently, etc.
3. Modernize data and AI platform: offer a cloud-based environment, scalable systems,
4. Data principles: develop defined-access policies for all user roles; quality checks at points of capture; data security and privacy by design; federated data governance (in which a core digital team is supported by other departments) and administration, etc.
5. Data activation: data is infused into core processes/functions; risk selection and pricing are fact-based and data-driven; there is the ability to offer data-driven insurance products, model new risks, etc.

2.2

HOW DO INSURANCE DATA MASTERS IMPLEMENT AND OPERATE THEIR DATA INITIATIVES?

Identifying the strong benefits gained by Insurance Data Masters from their data initiatives leads us to analyze what they are doing differently. We identified three areas where Data Masters are markedly different from their peers:

1. Centralized governance backed by distributed implementation:

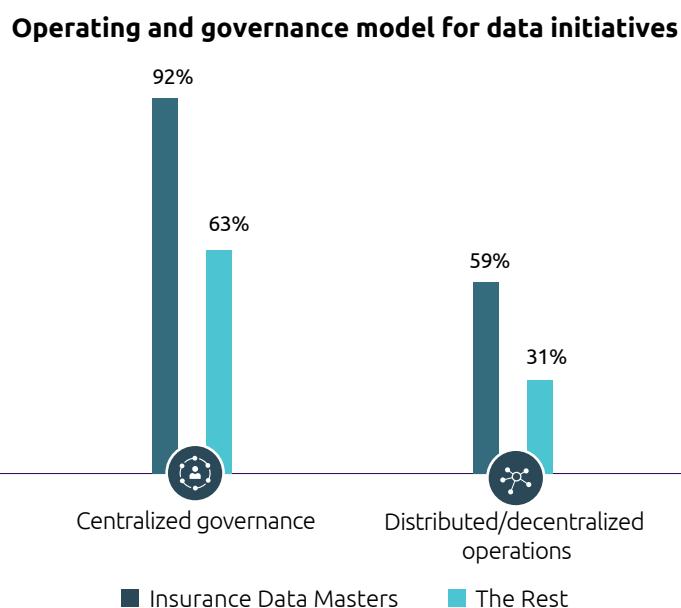
More than nine in ten (92%) Data Masters have a centralized governance or facilitation body, in the form of either a center of excellence or a centralized team comprising both IT and business personnel. This compares to just six in ten of their peers (see figure below). A centralized data-governance and facilitation team ensures interoperability and consistent focus of prioritization and execution.

66

We started as a big central team of data scientists. Now, we have broken the business up to manage specific lines such as motor insurance, life insurance, and so on. Those small teams are coordinated by the central data-science team and the head of the business line. This is the most efficient way to take on big problems within the organization."

.....
Antonio Bencini Farina,
Senior data scientist at Generali Italia

Figure 18 Data Masters use centralized governance* and decentralized operations



* Defines data strategy, draws-up roadmap, and governs decision making.

† Designs, builds, tests, and supports deployment.

Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=204 insurance organizations.

Six out of ten Data Masters utilized a distributed implementation and operationalized structure (i.e., a specific business unit or a specialized team). A comparable majority of the overall sample preferred to use a centralized structure (center of excellence or centralized IT and business team) (see figure above). A majority (six out of ten) of Data Masters also used a distributed structure to enable the application of local or industry/solution expertise required to scale and improve data initiatives.

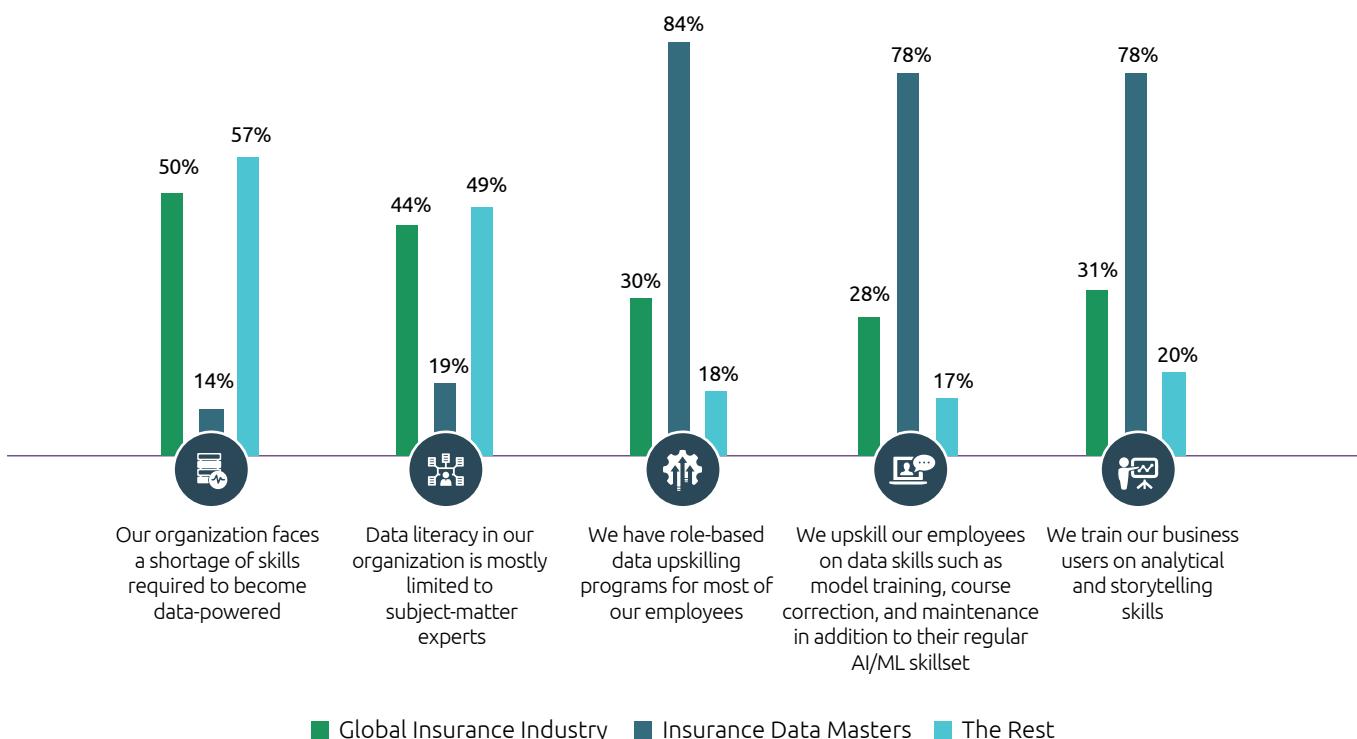
Antonio Bencini Farina, senior data scientist at Generali Italia, told us, *"We started as a big central team of data scientists. Now, we have broken the business up to manage specific lines such as motor insurance, life insurance, and so on. Those small teams are coordinated by the central data-science team, and the head of the*

business line. This is the most efficient way to take on big problems within the organization."

Data Masters ensure that such an operating model is backed up by the appropriate skills (see figure below). Only 14% of Data Masters cite a shortage of skills as an issue, compared to nearly six in ten of their peers. Over eight in ten have role-based upskilling programs; this compares to fewer than one in five of their peers. A similar story unfolds when it comes to training business users on analytics and storytelling skills.

Figure 19 Workforce capability and skills are a key advantage for Data Masters

Percentage of organizations who agree with the following



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=204 insurance organizations.

2. Insurance Data Masters collaborate with InsurTechs

Insurance Data Masters work closely with InsurTechs (see figure below). While they perceive them to be as much of a threat as do their peers (57% of all insurance organizations), this does not preclude their collaborating – more than six in ten (62%) partner regularly with InsurTechs, compared with just 22% of their peers. A similar proportion of Data Masters see InsurTechs as service providers that can fill gaps in their capabilities, compared to only one in three of their peers.

For example, a digital risk executive at a US-based insurer states how InsurTechs can access insights from

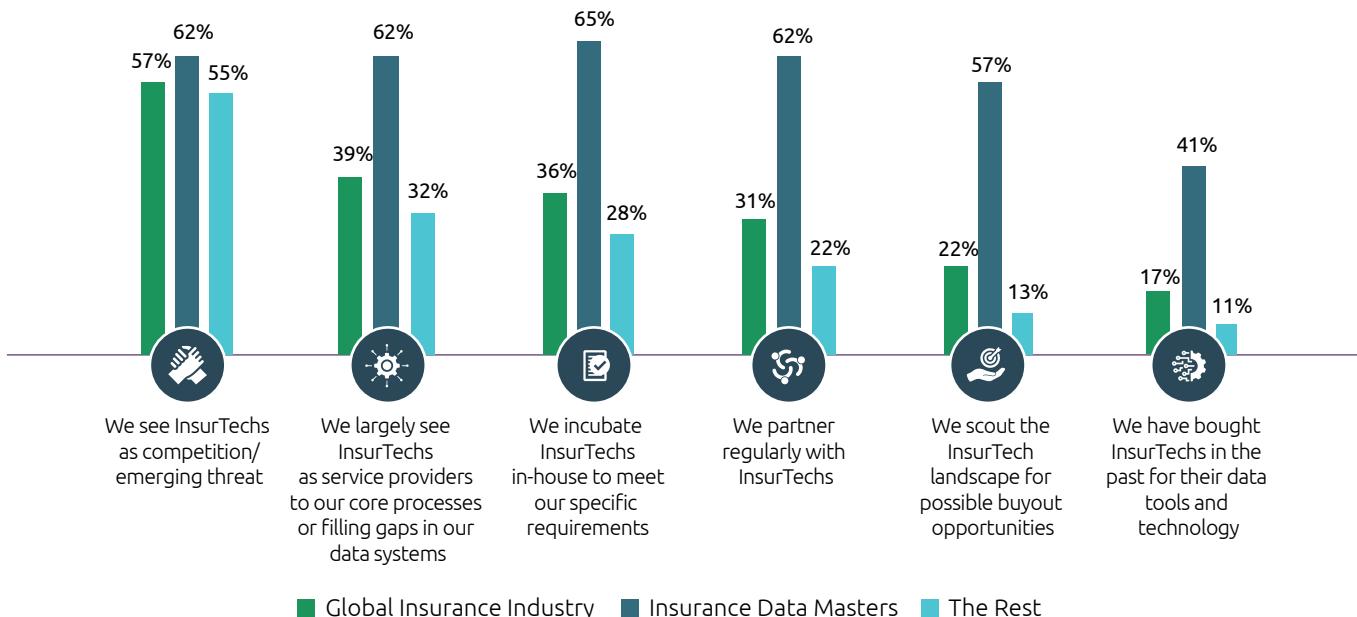
raw data that is plugged directly into its systems.

"Instead of downloading weather data, you can go to this company and get specific insurance knowledge about the data. You don't have to get the weather data and decide what you do with it."

Furthermore, 65% of Data Masters incubate InsureTechs in-house to ensure that they meet their specific needs, compared to fewer than three in ten of their peers. Around four out of ten insurance organizations have bought InsurTechs for their data tools and technology, compared to around one in ten of their peers.

Figure 20 Data Masters collaborate more with InsurTechs than do their peers

Percentage of organizations who agree with the following



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=204 insurance organizations.

The top three drivers for large insurers to engage InsurTechs include:

1. Improved customer experience through data-driven customization
2. Automating or modernizing internal processes, such as document management, claims servicing, and customer care
3. Improved underwriting accuracy and insights

3. Insurance Data Masters employ open data and platforms to their advantage

Open data and business models are becoming a rich source of insight for insurers. They allow secure exchange of data; task delegation; and sharing of business functions among partners, including InsurTechs, service/data providers, channel partners, technology providers, and other insurers

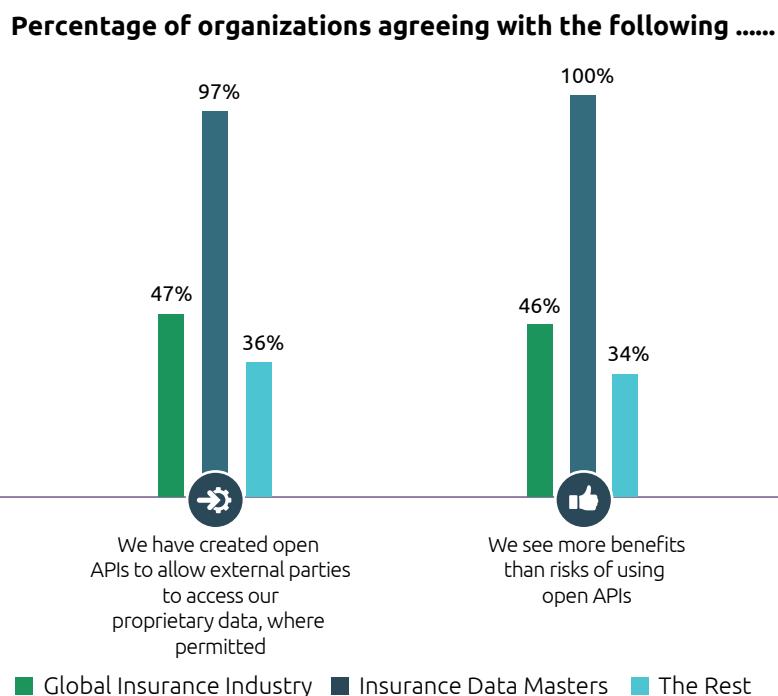
in the ecosystem. Nearly all Insurance Data Masters (97%) have created open application programming interfaces (APIs) to allow external parties to access their proprietary data, compared to only 36% of their peers.

The CDO of a large insurer in Europe told us, “*We want to find all possible data sources that could help or add value to us. In 2020, we launched an external-data*

initiative and, today, we have more than 20 data sources that we didn't have just one year ago. This is not just about public data, but also partnership with other industries, such as telecom and banking.”

Nearly 90% of Data Masters can easily link external sources with their platforms to create a mutually beneficial data exchange, compared to 28% of Data Laggards. The main benefits that Data Masters gain are:

Figure 21 Data Masters are advocates of open data and platforms



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=204 insurance organizations.

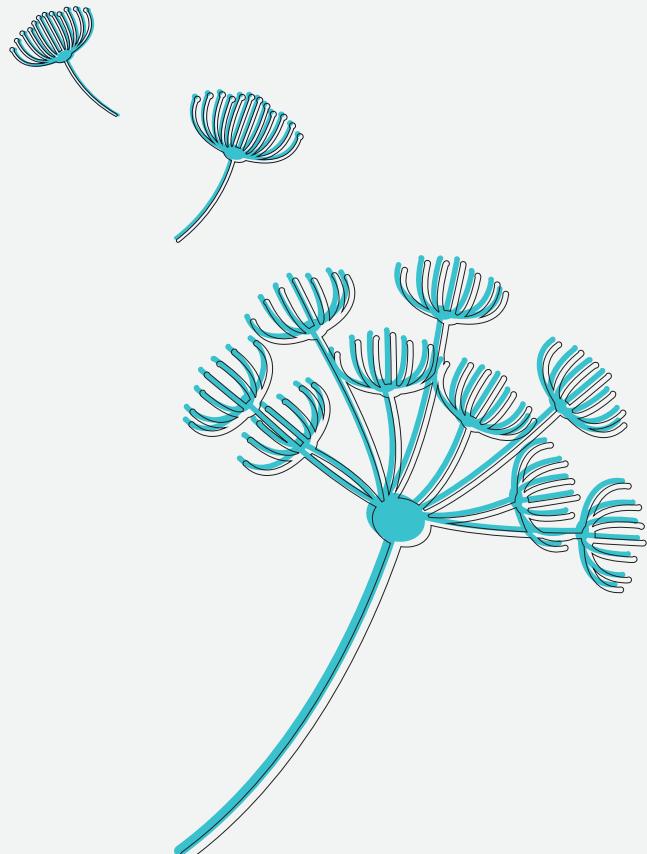
1. Around six in ten (59%) Data Masters utilize open-data initiatives to **create new products** for their consumers, compared to 9% of their peers.
 2. Nearly four in ten (39%) Data Masters **achieve faster and more accurate claims settlements**, compared to 28% of their peers.
 3. 36% of Data Masters use open data to **share risk insights** with other organizations, compared to just 8% of their peers.
- Additionally, open data can be used to improve customer service; generate personalized advice based on customer data; and streamline policy administration.

GEOSPATIAL INSURANCE CONSORTIUM AGGREGATES DATA TO FOSTER INNOVATION, RISK MITIGATION, AND PROCESS EFFICIENCIES AT INSURERS IN THE US

In the US, several insurers have created the Geospatial Intelligence Consortium, an entity devoted to collecting high-resolution aerial imagery of properties across the country. Below are the details of how they process claims faster using crowdsourced data:

- Using historical imagery from California wildfires, the consortium tapped into the property boundary data to isolate home locations in the images.
- Then it crowdsourced the tagging of total losses across 40,000 images to provide the data for a deep-learning model.
- Finally, the team employed Deep Machine Learning to analyze thousands of images of both damaged and undamaged homes to allow an instantaneous assessment of which properties were total losses.

Benefits: By providing immediate damage assessment, the companies are able to offer reimbursement for home losses in just a few weeks, allowing customers to begin recovering and rebuilding their properties without a potentially drawn-out and stressful period of uncertainty and delay.¹⁸





HOW CAN INSURANCE ORGANIZATIONS ACHIEVE DATA MASTERY?

03

There are numerous data-driven use cases to draw on from across the insurance value chain. Each organization has a different mix of capabilities and focus areas to allow them to derive results from their data initiatives. Although most organizations have developed a data strategy, these are often not aligned with overall business priorities.

"Companies often try to apply analytics to everything, but having a strategic focus is important. The most sophisticated technology and modeling approaches tend to be cloud-based or open source, which means that internal data assets and the human organizational processes are now the truly differentiating aspects of analytics." – Janet Wesner, head of analytics at Munich Re US.¹⁹

Our survey revealed that only 41% of insurance organizations ensure that their data executives align organizational data/analytics strategy with the overall business strategy. Data Masters ensure that the wider enterprise strategy drives their data strategy. This helps them set strategic priorities such as which technology foundations to build or which operating model to implement. Focusing on the specifics of the problem you are solving can ensure you do not get lost in the sheer volume of data available or become focused on the technology itself, rather than the end goal.

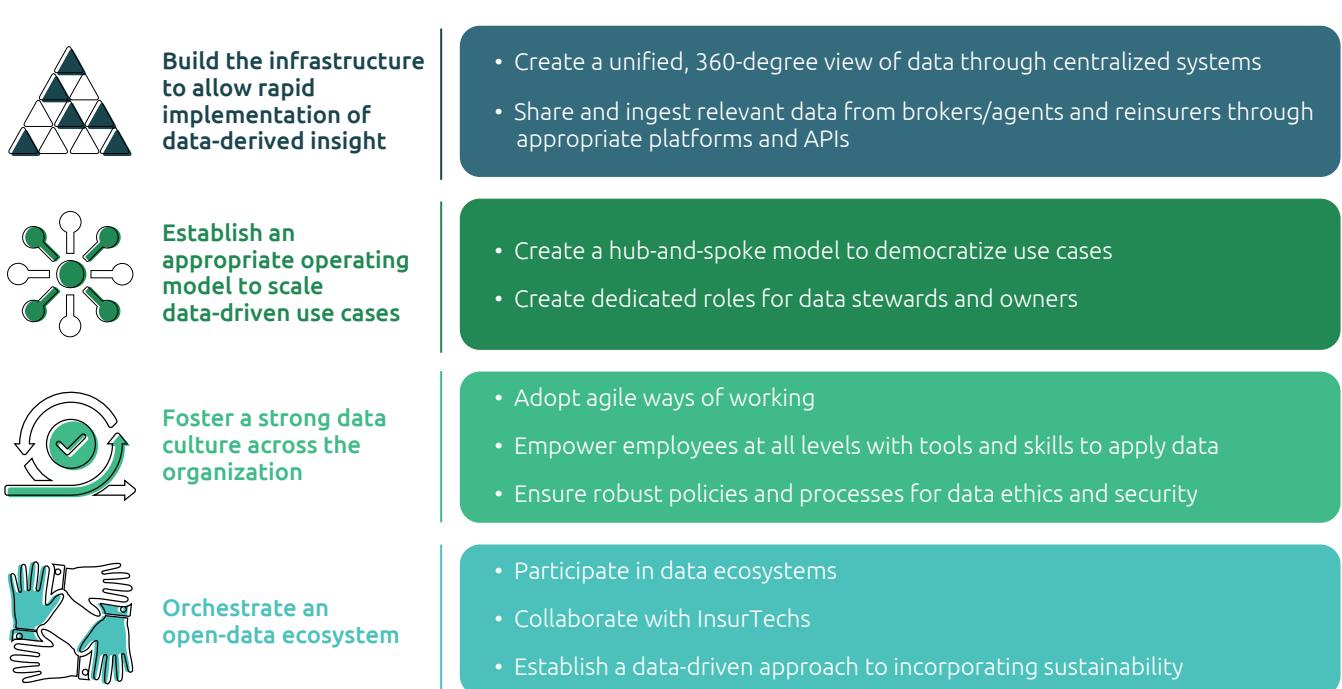
Below are four recommendations to ensure insurance organizations work towards a cohesive data strategy to achieve Data Mastery. We will delve deeper into these recommendations in detail in the subsequent sub-sections.

“

Companies often try to apply analytics to everything, but having a strategic focus is important. The most sophisticated technology and modeling approaches tend to be cloud-based or open source, which means that internal data assets and the human organizational processes are now the truly differentiating aspects of analytics.”

Janet Wesner
head of analytics at Munich Re US

Figure 22 Recommendations for insurance sector to achieve Data Mastery



Source: Capgemini Research Institute analysis.

41%

of insurers ensure that their data executives align organizational data/analytics strategy with the overall business strategy.

3.1

BUILD THE INFRASTRUCTURE TO ALLOW RAPID IMPLEMENTATION OF DATA-DERIVED INSIGHTS

A modern technology platform is needed to streamline disparate systems; generate a unified view of risk; and provide the required data in a timely fashion. Ultimately, this will lead to better customer service and engagement, as well as more effective risk controls.

According to our survey, lack of agility in IT infrastructure and legacy systems and monolithic architecture are the top two technical challenges faced by insurers. As explained by an insurance executive at a large US-based insurer, *"The data for the insurance company is used for so many different purposes. To produce one trustworthy report, for the board for example, it takes weeks and maybe even a month."* Data Masters, in contrast, invest in superior technology platforms, such as building an industrialized cloud platform, a continuous integration and development environment, or API-based architecture.

Figure 23 Data Masters invest in modern data systems and platforms



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=204 insurance organizations.

To modernize the data platform, leading organizations identify and reconfigure the parts of the value chain that provide the greatest value, and are best aligned with business priorities.

EVEREST RE IS MODERNIZING UNDERLYING TECHNOLOGY TO TRANSFORM UNDERWRITING AND CLAIMS FUNCTIONS

Everest Re has focused its technology efforts on its two highest-value, highest-priority areas: underwriting and claims.

- For underwriting, it has applied multiple advanced technologies, including ML to automate the submission process, providing underwriters with the ability to spend more time working closely with brokers to manage the business more effectively.

- For claims, it has centralized and digitized all pertinent correspondence and all of its first-notice-of-loss intake.
- Using AI and some sentiment analysis, it has modernized its assessment system for prospective severity and potential fraud.
- It now automatically routes each claim to the part of the organization where it will be most effectively and efficiently handled. It has implemented several technologies, such as a self-service photo app, a predictive loss-determination tool, and a predictive fraud tool.²⁰

Matching the model with the appropriate back-end technologies will not be enough to ensure success, however; the model must be activated across the organization.

Delivering insights to underwriters, brokers, agents, etc., at the point of decision is equally important. We recommend a focus on two aspects:

- **Create a unified, 360-degree view of data through centralized systems**

It can take weeks of effort to integrate and curate the relevant data for analysis. Disparate systems such as sales, claims, billing, etc., traditionally do not talk to each other,

leading to a disconnected agent and customer experience, as well as time lost in data management. Multiple sub-systems at country level, for example, can operate independently, meaning that data that could usefully be shared among them is wasted, or only partially exploited.

Insurers need to start by integrating these disparate sub-systems to attain a single, unified view across regions, customers, and agents. This is also important in developing a single view of risk and enforcing a consistent enterprise-risk framework across the organization.

CHINA LIFE INSURANCE CREATED A BIG-DATA ANALYTICS PLATFORM FOR ACCURATE DATA COLLECTION

China Life Insurance has built a big-data analytics platform to automate data compilation and links and establish a sales-tag library through “big data” and “AI-based tagging.”

- A consistent data structure provides descriptions of customer types, behavior, intentions, and interests to produce tags and customer labels.
- Based on the sales environment and target customers, different tags are selected and embedded into the account-management system. This serves two objectives: using customer segments to select products and products to select customer segments.²¹

Create a central repository of data-based solutions

Organizations can also benefit from building a central repository of organization-wide data models or solutions.

US-based health insurer, Anthem, has built a single interface for all AI and ML solutions, meaning its data teams can prepare and store training data; build and validate models via easy-to-use interfaces; and deploy them at scale. It was able to cut deployment time by half, to around three months, and to reuse existing models for multiple use cases. The company is also in the process of consolidating data from seven systems into a single repository.²²

Accelerate cloud migration

Having applications deployed in cloud, coupled with an API-led architecture, helps greatly. *"Cloud makes it possible to support large-scale operations and an unparalleled level of innovation. There's also the added advantage of increasing flexibility and a higher capability in business functions and processes,"* according to Goutam Datta, CIDO, Bajaj Allianz Life Insurance based in India.²³

Many insurers are already in the process of migrating their data, models, and systems to a cloud-based environment. They have realized benefits such as more scalable risk models; "Lego-block" capabilities that allow them to build solutions quickly; democratized, regulated access to data; and, ultimately, more agility in IT operations. Already, around nine in ten large (>\$20 billion in annual revenue) insurance organizations state that they are in the process of moving all of their data to a cloud-based environment.

According to Manu Lavanya, Director and COO at Max Life Insurance in India, *"Most of our customer-facing assets are already in the cloud, especially customer onboarding and underwriting. We are transitioning key enablers like CRM, workflows, and rules engines to the cloud ... Over 2-3 years, 70% of our data workloads will be in the cloud. The only systems remaining on premises will be our core insurance-policy administration systems."*²⁴

Broaden the use of APIs to connect disparate systems

An API-led architecture facilitates the migration of a modular business application from legacy infrastructure. Interoperability within multiple cloud environments can be streamlined by working with open-source or package solutions that employ the same codebase and APIs. APIs, for instance, use a consistent platform to deploy and manage cloud-native and legacy applications across multiple clouds, with a single interface.

- At Manulife, 57% of applications have been moved to the cloud, allowing continuous improvement to be made in alignment with evolving customer preferences, at pace and scale.
- This has also provided the company with the ability to integrate into and collaborate with other participants

in the ecosystem to which it connects through its open architecture from cloud microservices.

– **Benefit:** Manulife was able to add the latest capabilities from wearable technology providers, health-scoring platforms, and reward platforms to, for instance, enhance the value of its behavioral-insurance offering or deliver its digital capabilities seamlessly through its bancassurance partners.²⁵

- **Share and ingest relevant data from brokers/agents and reinsurers through appropriate platforms and APIs**

Insurance carriers need to gain exposure to the widest possible range of data as it travels between different participants in the insurance industry value chain: from customers, insurance firms, insurance data providers, agents or distributors, re-insurance companies, and e-marketplaces. Carriers need to develop platforms to ingest, process, and share this data seamlessly with other participants.

As data travels back and forth between the nodes, carriers lose the full picture of the data. This leads to inefficient and costly delays in customer servicing; increased administrative load; inability to provide modularized solutions to customers; and limited visibility of emerging risks.

For many insurers, platforms enabling integration of third-party datasets have streamlined processes and improved customer engagement. *"Our deep integration with partner systems allows us to capture leads directly from dedicated CRM tools that combine customer data with AIA's advanced analytic techniques, including propensity models. Integration with credit bureaus, government databases, third-party administrators ... has allowed us a rapid transfer of data, enabling a seamless customer onboarding experience, simplified underwriting and issuance process, and also compliance with regulatory requirements, such as know-your-customer applications. Using these connections, we have digitalized payments, policy completion and submission,"* declares Naveen Tahilyani, CEO at India-based Tata AIA Life Insurance.²⁶

Companies need to partner with ecosystem players to create platforms to standardize data-sharing across the industry. Below are a few examples:

- ACORD Solutions Group (ASG), part of ACORD, the body that sets data standards for the global insurance industry, launched a platform in collaboration with Zurich North America and Aon Plc. This platform enables automated, real-time premium accounting reconciliation between insurers and brokers.²⁷
- B3i, a startup owned by several carriers, brokers, and reinsurers, works on distributed-ledger technology (DLT) to streamline the risk-transfer process to

reinsurers. It eliminates the duplication of data across applications, systems, and parties. Since all data remains in the blockchain and cannot be altered, DLT enables the preservation of a single version of truth about contract data. In January 2021, B3i partnered with Eurapco, an alliance of eight European insurers, to launch a new risk-transfer solution in categories including, for instance, marine insurance, to increase transparency in contracts.²⁸

– Zurich North America’s crop-insurance business, Rural Community Insurance Services (RCIS), connected to API services of John Deere, a farm-equipment manufacturer. The connection allows farmer customers to report their field data electronically, as required by the US government. This helps farmers avoid the time-consuming manual documentation and reporting process.²⁹

Similarly, reinsurer SCOR SE is a participant at Gaia-X, the association in Europe that is pushing for more data exchanges in a project to create a marketplace of data for the long-term care and the old age industry. “*We are trying to gather the entire ecosystem of elder care to be able*

to exchange their data to make the ecosystem (from people about to require services at home up to nursing home) much more resilient and more productive. The ecosystem itself, all the actors, they are each seeing a part of the life trajectory, but they don’t necessarily see the entire life trajectory. So, the idea is by having this marketplace is to be able to see that life trajectory and act upon.” said Bruno Latourrette, Chief Knowledge Officer at SCOR Global Life.

Carriers are creating customized APIs and software-development kits for partners and customers to share insights and provide enhanced offerings. Partners such as airlines, logistics companies, and e-commerce portals help drive embedded insurance. Using open APIs, carriers can embed third-party digital services into their offerings.

APIs help insurance carriers to broaden their reach, create new opportunities, improve customer service, and gain more external data. As embedded and micro-insurance services gain ground, carriers should market their APIs to a broad range of platforms – beyond the traditional ecosystem partners such as insurance marketplaces, brokers/distributors, etc.



“

We are trying to gather the entire ecosystem of elder care to be able to exchange their data to make the ecosystem (from people about to require services at home up to nursing home) much more resilient and more productive.”

.....
Bruno Latourrette
Chief Knowledge Officer at
SCOR Global Life



3.2 ESTABLISH AN APPROPRIATE OPERATING MODEL TO SCALE DATA-DRIVEN INSURANCE USE CASES

Accelerating the speed of development of use cases will not be enough on its own; data teams must be aligned on business objectives. As our research shows, only one in ten organizations has been able to scale any particular use case fully. Insurers can take the following steps to optimize their scaling of data-driven use cases:

1. Create a hub-and-spoke model to democratize use cases

Nearly half (45%) of organizations cite a lack of unified infrastructure management, monitoring, and governance capabilities for data-driven initiatives. Furthermore, more than half (54%) of insurance organizations agree that there is a lack of alignment between data/analytics strategy and organizational vision. An ad-hoc approach works only up to piloting and proof-of-concept stages. Insurance Data Masters have proven that in order to scale further, a hub-and-spoke model is the best approach.

In such a model, a central team is set up to coordinate the efforts of various data sub-teams; and this central team also share learning and best practices; maintain supporting data infrastructure; provide access to curated datasets; and foster collaboration and data sharing among various teams. At spoke level, data analysts within business teams support the relevant department's use cases and issues related to specific products, as well as answering the team's data-related queries.

Effectively, this means centralized governance with distributed operationalization:

1. Set up a central team headed by a chief data/ analytics officer (CDO/CAO). The team will be responsible for overall policymaking, data strategy, and governance. Apart from supporting the monetization of internal and external data, CDOs nurture the skillsets required to create and sustain a data-driven culture.

2. Decentralize implementation of use cases at business-unit level: Business-unit leaders identify the most advantageous and appropriate data initiatives, with reference to overall business strategy, and own the creation, maintenance, and metrics tied to formulating data solutions.

45%

of organizations cite a lack of unified infrastructure management, monitoring, and governance capabilities for data-driven initiatives.

3. Establish central facilitator teams. A data center of excellence (CoE) acts as a facilitator to support analytics and AI teams within business units. These teams should include data stewards and data owners, delivering specialized data expertise on tap. It also standardizes datasets across the organization.

Germany-based Ergo Group, a Munich Re company, has created a team of 27 full-time employees working centrally on AI solutions. It uses an open-source infrastructure that can be applied to other countries and business lines.

Dr. Markus Rieß, CEO at Ergo Group, recently talked about scaling insurance solutions: *"We already have 10 use cases in production, primarily around pattern recognition in health claims. They recognize irregular patterns, such as fraud, where we have to adjust our tariffs. This is immediately accretive to our bottom line ... and we [will] have at least 20 more projects in at least eight more countries over the next five years."*³⁰

2. Create dedicated data roles in the "hub" as well as the "spokes"

With newer sources online and more specialized datasets readily available, there is a need for a distinct role to manage, process, and establish trust in the data. Dedicated data roles should be set up for any cluster of data, including sales, claims, policies, etc., and/or be based on the priority or importance of data for the organizations. Only 44% of insurance



organizations have a record of the data owners for all their internal data.

One large European insurer focused on process functionality, paying little attention to the quality of data. To improve data quality, the company launched a data-from-design initiative, in which a data team was involved from the start of any strategic initiative. It also filled the data owner role from the business side, rather than from IT. The data owner is responsible for at least one data domain (e.g., customer or claims) of the 32 domains defined by the company. As per the company's CDO, *"Data owners are [our] guarantee that domain data is available; documented; in the right place with the right quality; and it's also findable, accessible, and operable."*

Data owners fulfill the following remit:

- a. Develop an understanding of which datasets feed into analytics solutions and how these link to business outcomes
- b. Improve upon data quality: data-sourcing quality issues, technical and business-quality issues (for instance, the definition of a "prospect" could differ between different systems), and data-veracity issues (accuracy, precision, and trustworthiness of data).
- c. Play the role of a "data evangelist," democratizing data and building meta-data libraries.
- d. Often, data owners are not fully dedicated to data-related activities. This is where data stewards come in. They are part of the central data-science team or belong to CoEs. They support the data owners in their daily data-related tasks. They are responsible for everything related to data collection, maintenance, organization, and compliance. Furthermore, data custodians from the IT teams are responsible for the technical management of data.

3.3

FOSTER A STRONG DATA CULTURE ACROSS THE ORGANIZATION

Insurers have, for decades, been drawing on historical data in risk and actuarial organizations. A truly data-powered organization, however, infuses data into all other functions too, relying less on experience-based judgments, and integrates new sources of data to enrich insights. This vision is best explained by Mónica León Santamaría, Global Data & Analytics Lead at Bupa *"We are putting data in the core of the organization; we have to embed data-driven decision making in the whole organization – not just for the analytics and insights teams."* However, at this stage, fewer than half (48%) of insurance organizations invest in their data cultures by enabling employees with the skills and tools to generate and apply insights.

THE TRAVELERS COMPANIES FOCUSES ON BUILDING THE RIGHT DATA CULTURE

US-based insurer, Travelers Companies Inc, launched a Data Culture program in 2020 to reinforce the strategic value of data use and how it impacts its business.

The aim is to ensure that all employees identify and capture appropriate data; take ownership of the data under their management; understand and protect it; and ensure that they use it in a timely fashion.

Program highlights included:

- 1. Engagement:** Creating awareness and understanding of the importance and impact of data
- 2. Learning and Development:** Offering programs to support a community of continual learning and growth
- 3. Enablement:** Providing tools and resources to accelerate the maturation of a data-driven culture

As part of this program, senior leaders were trained to become even better consumers of data and analytics capabilities, extending beyond traditional uses in product risk and segmentation and enabling them to reimagine work processes as data-driven, across the value chain.³¹

Below are a set of important enablers to create a data-powered culture:

1. Adopt agile ways of working

In an agile culture, business teams can work alongside data experts to build and test new ideas. To promote this, leaders must nurture an atmosphere of psychological safety in which employees can experiment and fail in their quest to explore new ideas. However, only 38% of respondents agree that their workforce can test and prototype without fear of failure.

Prudential (UK) has introduced “hothouses”: intensive three-day workshops designed to convert (at high speed) concepts into propositions ready for launch, subject to regulatory approval. Since then, the hothouse has become a key component of its work-process template. The output of this is a step-change in innovation: it was able to launch 175 new or improved products in 2020, up from 106 in 2015, as well as successfully rolling out its Pulse program across 17 markets in Africa and Asia in 21 months.³²

2. Empower employees at all levels with tools and skills to apply data

Insurance organizations are required to build and develop data capabilities among their workforce to ensure that all business users can access and use data. Lloyd's of London, an insurance provider, focuses on ensuring that employees at all levels can achieve more with data. Through a user-friendly self-service website called My Data, they have provided their employees with an overview of all their business data, including access to apps and dashboards, and explanations of how data is used. The aim of this initiative is to improve data literacy and to enable business users to extract full value from the data available to them.³³ The following steps can provide a way to build the necessary skills and capabilities:

a. Deploy self-service analytics tools

Self-service analytics arms front-end teams with quick access to actionable, data-powered insights, without necessarily requiring the help of data experts or data scientists. However, only 32% of insurance organizations are implementing or expanding self-serving analytics. Furthermore, only 21% of insurance organizations currently train business users in self-service analytics.

1. Educate business users in the tools, data, and possibilities available. Organizations should offer data-preparation tools to their users – only 37% of organizations currently do so.

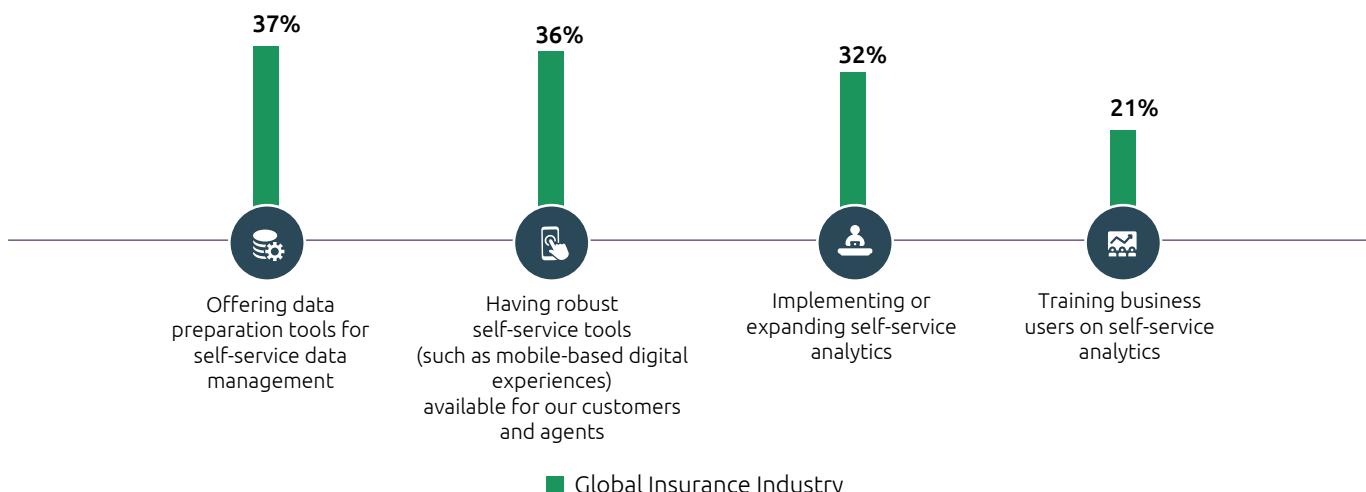
2. Define access policies for all user roles.

Without predefined access policies, most users spend time working on approvals rather than analysis. Nearly four in ten organizations cite this as a critical issue.

3. Create a glossary of data sources accessible to users, along with details of the responsible data stewards. Employees should also be able to question and challenge data stewards on the structure and features of different sets of data. This fundamental access to data is critical to enabling a self-serving data culture.

Figure 24 Self-service tools and enabled users are scarce in the insurance industry

Percentage of organizations facilitating self-serving analytics culture



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=300 business executives and 210 technology executives across 204 insurance organizations.

Among Data Masters, unsurprisingly, nearly nine in ten (89%) are implementing and expanding self-serving analytics.

b. Upskill/reskill existing employees to enable data-citizenship

We define “data citizenship” as understanding the inherent potential of data; interpreting the data accurately; and harnessing it to allow

business users to drive decision-making with this agency, becoming “data citizens.” However, most insurance organizations are still at the beginning of this journey. Four in ten insurance organizations state that basic data skills, such as statistical compilation and storytelling, are lacking in their organizations.

Around half of insurers state they lack data talent in junior and middle-management roles. One in five insurance organizations lacks data-engineering and data ops/MLOps capabilities. These skill shortages should be filled internally through upskilling programs. Organizations should take the following steps to reskill and upskill their employees to facilitate data citizenship:

- Business users must be trained in self-service analytics and the use of visualization tools, enabling them to create a narrative based on data. Currently, only three in ten insurance organizations train their business users in analytical and storytelling skills, compared to four in five (78%) Data Masters.
- Organizations should also implement a role-based upskilling program – something only three in ten organizations do at present. These programs will play a key role in building towards and, ultimately, realizing the vision of data citizenship. Organizations should first map out every future role and build upskilling/reskilling programs around them.
- Special emphasis should be placed on recruiting and recognizing employees who possess AL/ML skills. They should add data skills, such as model training, course correction, and maintenance to their skillsets. Fewer than three in ten organizations (28%) are doing this currently.

An insurance organization must have a clear vision and roadmap of how roles should evolve over time and the skills required to enable this. This should be coupled with a survey of current capabilities and a dynamic upskilling program to address these deficiencies.

3. Ensure robust policies and processes for data ethics and security

The expectations for clear explanation of AI outputs is higher in insurance segments that deal with high-impact decisions for customers, such as protection from adverse events. With the growing implementation of data-driven decision making, insurers should ensure that data is used ethically and reliably to protect against the loss of trust and financial/reputational damage. Only three out of four insurers include data security among their design principles, while 51% have a process by which to define and secure ethical standards. Fewer than half (46%) have a process in place to address algorithmic bias.



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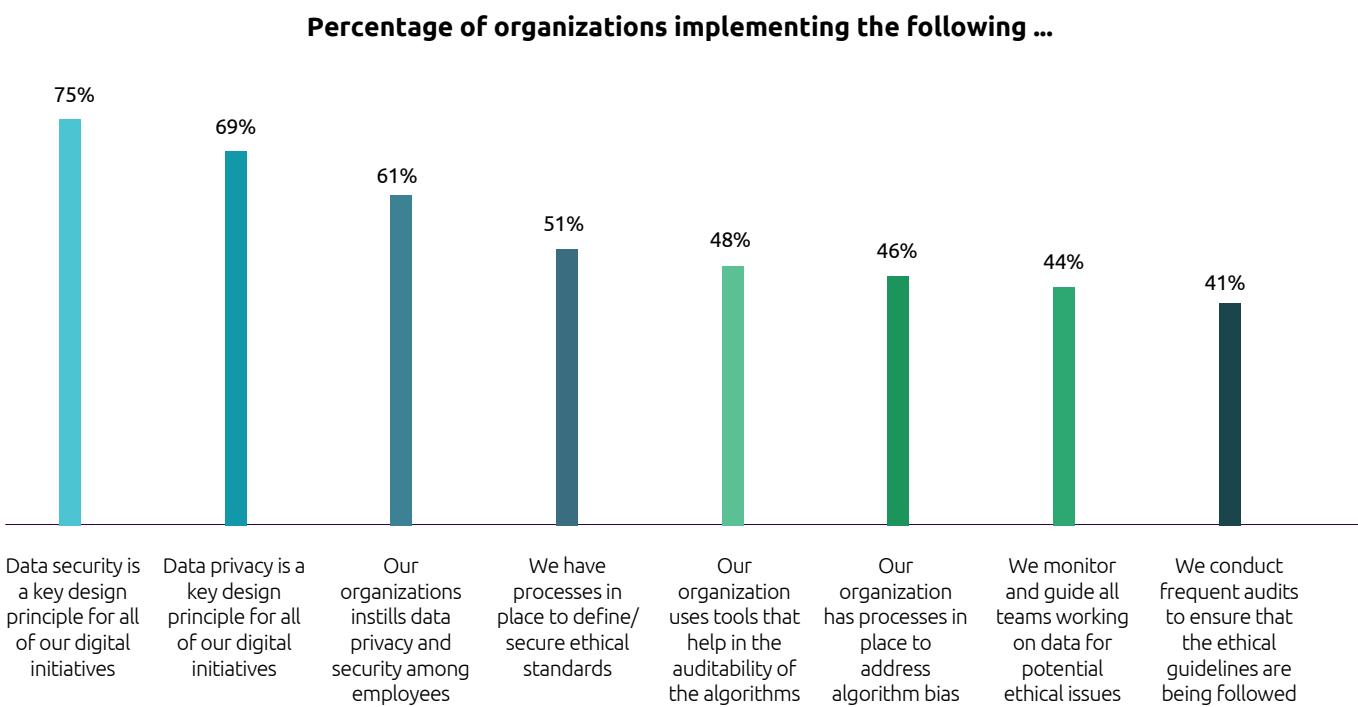
In order to drive the democratization of data in an organization, we ensure that the people understand the use of data. We are building the Global Digital Academy, which provides learnings depending on your role and your responsibilities – making it personalized.”

Mónica León Santamaría
Global Data & Analytics Lead, Bupa

46%

of insurers have a process in place to address algorithmic bias.

Figure 25 Few insurance organizations have adopted a system of data ethics



Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=300 business executives and 210 technology executives across 204 insurance organizations.

Insurance organizations should take the following steps to ensure a strong foundation and guiding principles for their data initiatives:

- a. Establish a strong foundation and internal processes for ethics, privacy, and security.** Organizations should establish central bodies to develop a comprehensive guide for upholding ethics, privacy, and security among all applications, products, and functions. All applications that utilize and store consumer data for building products and features should be audited frequently to ensure adherence to established policy. According to Antonio Bencini Farina, senior data scientist at Generali, *"Every time we manage potentially sensitive data, we have to create a document that states the kind of data we use, and why we use that data, and this document is screened and approved by our legal and privacy department."*

China's Ping An has established an AI Ethics Management Committee, forming a comprehensive AI governance system at Group level. It is responsible for steering the macro direction of Ping An's AI ethics policy, and ensuring fairness and justice for products under development. The committee also oversees information security and privacy protection during the provision of services and products, and addresses ethical issues involving AI during the implementation of projects.³⁴

- b. Engage data privacy and ethics officers in data-driven implementations:** According to the CTO of a large European insurer, *"When we launch a new use case from the prioritization and feasibility phase, the data privacy officer (DPO) is involved and takes care of privacy concerns from the first minute. And we take it into account before selecting the use cases and then, along the product lifecycle, the DPO is also with us."*



c. Enhance AI transparency through technology

tools: Cloud platform vendors, niche providers, and open-source communities have made available various tools, libraries, and frameworks for ethical AI. As with your database engines and front-end development frameworks, these tools must be part of the capabilities that development and operations teams know, master, and use daily.

d. Ensure human oversight of AI systems: The

ethics guidelines for trustworthy AI drafted by the EU High-Level Expert Group on AI lists "Human Agency and Oversight" as one of the seven requirements to be implemented and evaluated throughout the AI system's lifecycle.³⁵ It recommends that, "(human) oversight may be achieved through governance mechanisms such as a human-in-the-loop (person can stop or start an AI action) or human-in-command approach."

3.4 ORCHESTRATE AN OPEN-DATA ECOSYSTEM

Insurance organizations need to develop and tap into external ecosystems to attain a data advantage over their peers. India-based SBI Life Insurance was the first company to integrate its APIs with the Insurance Information Bureau of India (IIBI), which maintains a central repository of life-insurance policies of participating insurance companies. This allowed real-time information to be made available to the company to facilitate new business underwriting, claims assessment, and the detection of various non-disclosures.³⁶

An insurance organization can establish a data advantage with the following key steps:

1. Participate in data ecosystems

Our previous research indicated that organizations could augment their revenue by 2–9% through participation in data ecosystems.³⁷ Data ecosystems enable better understanding of threats such as climate change, cybersecurity, and political and economic volatility. New products, such as connected healthcare and autonomous vehicles, can be developed in partnerships forged within external data ecosystems.

Insurance organizations should follow a clear roadmap for data-ecosystem engagement:

a. Formulate a data-ecosystem strategy:

Insurance organizations should clearly understand the purpose of engaging with a specific data ecosystem. This engagement should be governed by a dedicated central team, responsible for addressing key questions about value proposition, sharing format, and monetization.

Insurance organizations should clarify which products and solutions or threats they want to address. This will enable organizations to identify which ecosystems to participate in, as well as measuring potential value.

b. Make key design decisions:

Insurance organizations have to make the following key decisions before participating. First, they should decide which data can be shared and identify trusted partners. They should also make key choices about which data ecosystems allow competitor participation. Insurance organizations should also understand the collaboration models on

offer, and which of these is best suited to the organization's needs.

c. First adoption of data ecosystems:

Insurance organizations should start implementation by running small-scale pilots. Initial challenges could be different formats and variety of ways data are organized, as well as ensuring quality. For example, when external data is available in hand-written images, AI tools can read and convert it into text and numbers. In such ways, companies need to establish standardization and verification measures before merging external data with internal databases. Small pilots can help build and industrialize such processes, as well as validating estimates of potential value. According to Rodolphe Herve, CEO North America & Global Head of Operations, Specialty Insurance at SCOR, *"The submission data that we get and even the external data that we get is not completely organized; it comes in PDF document, Word document, Excel spreadsheet, manuscripts, notes, emails, or from platforms that we connect to for brokers and external partners giving us API information. We have developed some solutions to do click and capture automation of some of the key terms and conditions and then being able to put it neatly into our systems. In the next few years, we will see AI data capture functionalities getting better and better"*



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The submission data that we get and even the external data that we get is not completely organized. We have developed some solutions to do click and capture automation of some of the key terms and conditions and then being able to put it neatly into our systems. In the next few years, we will see AI data capture functionalities getting better and better”

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Rodolphe Herve
CEO North America & Global Head of Operations, Specialty Insurance at SCOR

d. Sustain the advantage:

This step involves scaling up the use cases to their full potential. It requires constant monitoring and measuring of the success of these ecosystems. Insight generation should be prioritized and organizations should make significant efforts to ensure that all participating organizations are deriving value from the ecosystem.

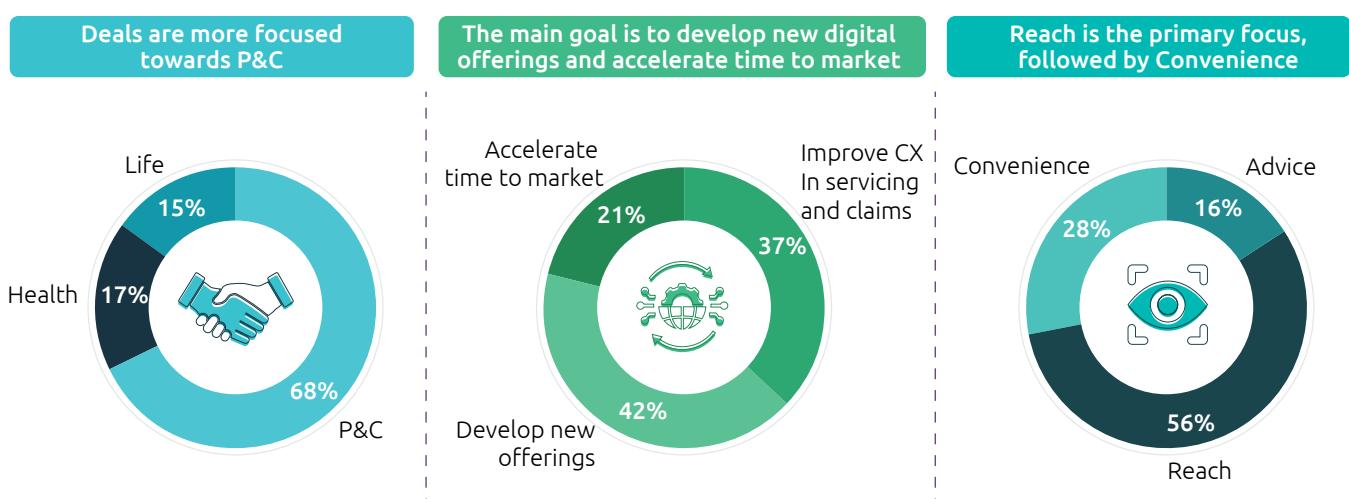
Without these ecosystems, insurance organizations will be locked out of emerging insurance segments, as explained by Matthew Edmonds, former Head of Tesla Insurance, US: *"As vehicles become more sophisticated, OEMs [original equipment manufacturers] will have all the vehicle and driving data. They will know how the vehicles are being driven; if the ADAS (automated assisted driving systems) features are being used; and the exact distances they are traveling. Since they hold the key, they have a great opportunity to provide their own insurance to their consumers"*

2. Collaborate with InsurTechs

Our research on InsurTechs³⁸ shows that they play a key role in certain areas of the value chain. For example, most current M&A among large incumbent insurance organizations is undertaken to expand the reach of current products and services (see Figure 28). Our survey shows that, despite having greater digital reach and capabilities than their peers, only 41% of InsurTechs act as service providers to improve core processes or fill gaps in data systems.

Most InsurTechs can be categorized into either data suppliers or insights providers. Data providers, which build tools to use data and derive insights on risk, are fast proliferating. Insights providers augment intelligence about risks, provide fraud detection tools, or better insights about customers or operations. For incumbent insurance organizations, InsurTechs can offer considerable advantages by filling in capability gaps, new product development, and establishing digital reach to consumers.

Figure 26 More than half of incumbents have sought InsurTech partnerships



Source: Capgemini Financial Services analysis 2021; InsurTech partnership analysis – Study includes 44 deals in 2020 from the 15 largest insurance companies worldwide.

a. Closely analyze and monitor InsurTech offerings

Insurance organizations should monitor and develop a deep understanding of the InsurTech landscape. This should include establishing relations with upcoming InsurTech organizations and developing venture spaces and "hackathons" for them to showcase

products and solutions. This will offer insights that can be integrated.

Max Life Insurance based in India actively engages with InsurTechs by organizing external hackathons/competitions. According to its CFO Amrit Pal Singh, *"There were 6–7 use cases, which were specifically given out in the market. We have shortlisted a total of 4 or 5 startups with*

whom PoCs are being done, and these are across value chain dimensions of a more health engaging platform, underwriting capabilities, capabilities to reprocess documents more effectively. Some of them became mainstream. But it's our structured effort of actually outreaching in the market to ensure we are kind of scouting for new technology changes that are happening in the environment.”³⁹

b. Set up a strategic partnership to bridge gaps in reach and product offerings

InsurTech can bridge the digital CX gap and expand its reach. It can also offer new-age solutions (e.g., telemedical) and continuous monitoring through IoT connectivity. These types of offerings are integral to the transformation of the insurance industry from a product-offering risk carrier to a complete service provider. InsurTech can also enable the shift from current risk-management strategies to risk mitigation.

c. Acquire stakes in critical InsurTech organizations

Critical InsurTech, such as digital-platform distributors and new-age solutions providers, depending on the carrier's strategy can be considered for outright purchase. This would also allow carriers to ward off the risk of competitive acquisition.

3. Establish a data-driven approach to incorporating sustainability

The collective social impulse towards sustainability and climate action has wide-ranging consequences for insurance organizations, from the underwriting aspect to the internal operation and carbon footprint to the investment portfolio. Natural disasters, for example, led to losses of \$210 billion, with insured losses of \$82 billion in 2020, growing from the losses of \$166 billion and \$57 billion, respectively, in 2019.⁴⁰

The insurance industry will play a key role in economies' climate agendas. As explained by Eric Usher, the head of the UN Environment Program Finance Initiative, “*The insurance industry plays a three-part role as risk managers, insurers, and investors, which uniquely positions the industry to help support the building of climate-resilient economies.*”⁴¹

Insurance organizations need to apply sustainability principles holistically – involving their own operations, operations of their policyholders, investment portfolio evaluation, as well as participating in global ecosystems to lower ESG risks. They can start with committing to science-based target (SBTs) to reduce emissions and measuring and reporting related KPIs. Some examples, include measuring emissions from corporate travel, real

estate, and scrutinizing portfolio investments, etc. P&C insurers can include riders for customers struck by, say, a catastrophe to rebuild or restore in environmentally friendly ways.

Organizations need to establish the following practices and actions to address these changes:

1. Establish a climate-action competence, aided by actionable data

Insurance organizations should establish central policies for climate action. These policies should address areas of concern through underwriting and product/solutions development. Relevant data sources and actionable insight capability should be built up. This requires nurturing of new expertise and knowledge, backed by data. Sharing leading practices across the organization will also be imperative.

At Allstate, for example, the Catastrophe Modeling and Analytics Team partners with the Investments group to model the catastrophe exposure of real-estate investments and portfolios.⁴²

2. Leverage advanced analytics, AI, and machine learning

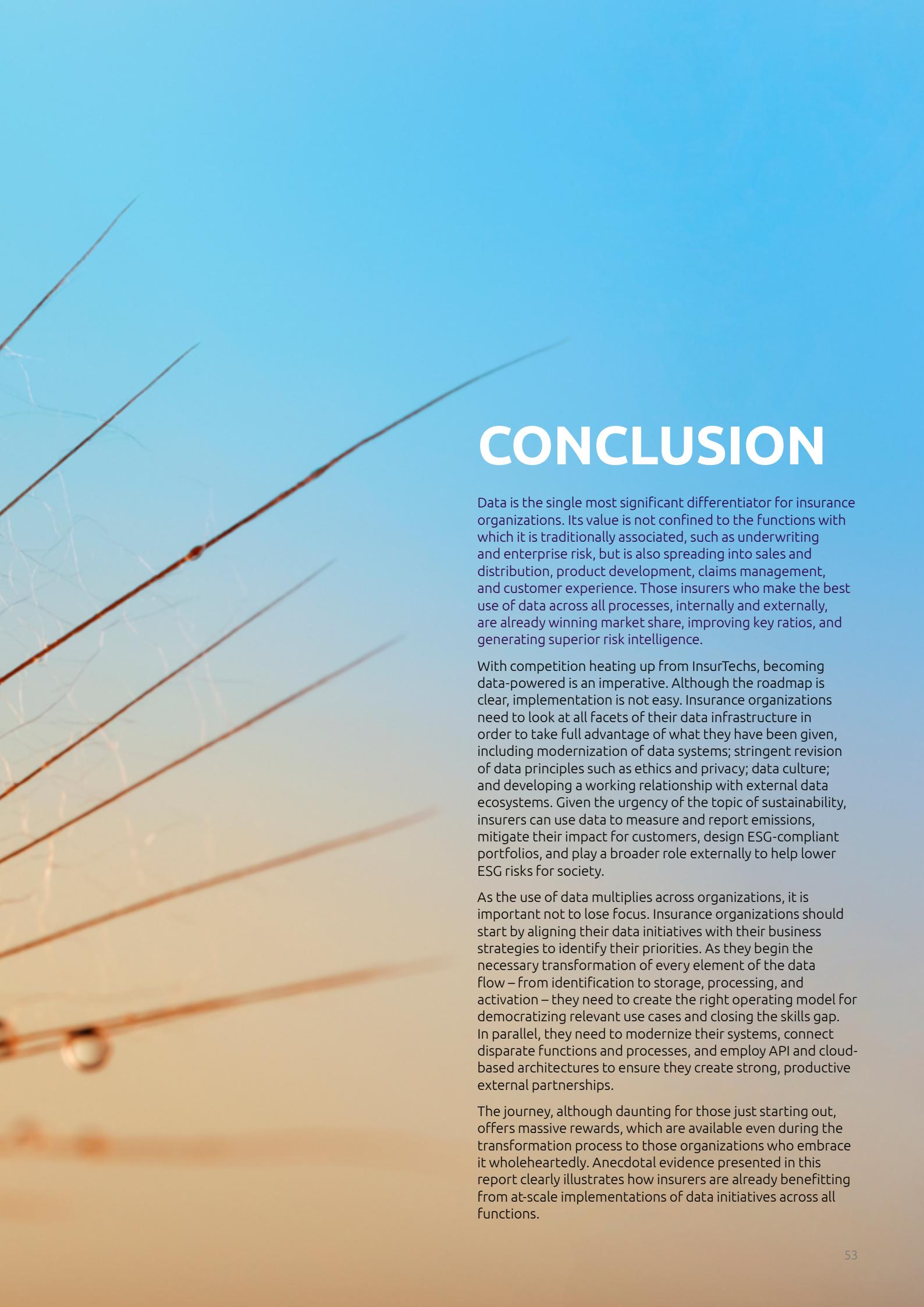
The multitude of data sources and insights needs to solidify into concrete solutions to develop and update risk models, analyze investment portfolios, and develop new products and services.

Reinsurers, with access to aggregated datasets from multiple insurers, have developed strong competencies to provide insights. They are better able to create products or solutions around sustainability risk and monitoring. For example, Munich Re's risk-intelligence platform analyzes how assets may be impacted by physical climate risks, based on scientific scenarios under different CO₂ emissions pathways. The platform can be used by insurers for sustainability reporting, regulatory stress-testing, and risk management.⁴³

Leading insurers are building services using advanced analytics models to help clients assess and minimize environment, social, and governance (ESG) risks. Ping An built an AI-enabled platform incorporating 400 ESG indicators for risk management. The platform offers tools for ESG performance management to listed companies, informs investment institutions of the ESG performance of investment targets, and provides comprehensive ESG functional support for rating agencies and governments etc.⁴⁴



CONCLUSION



Data is the single most significant differentiator for insurance organizations. Its value is not confined to the functions with which it is traditionally associated, such as underwriting and enterprise risk, but is also spreading into sales and distribution, product development, claims management, and customer experience. Those insurers who make the best use of data across all processes, internally and externally, are already winning market share, improving key ratios, and generating superior risk intelligence.

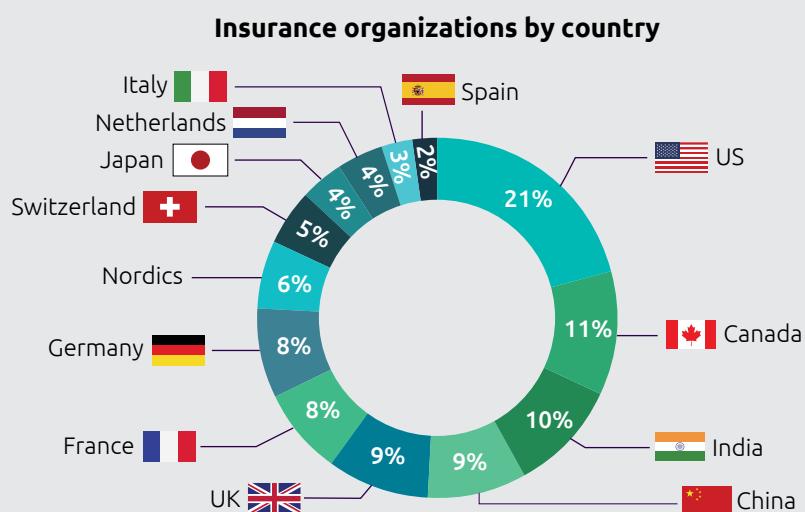
With competition heating up from InsurTechs, becoming data-powered is an imperative. Although the roadmap is clear, implementation is not easy. Insurance organizations need to look at all facets of their data infrastructure in order to take full advantage of what they have been given, including modernization of data systems; stringent revision of data principles such as ethics and privacy; data culture; and developing a working relationship with external data ecosystems. Given the urgency of the topic of sustainability, insurers can use data to measure and report emissions, mitigate their impact for customers, design ESG-compliant portfolios, and play a broader role externally to help lower ESG risks for society.

As the use of data multiplies across organizations, it is important not to lose focus. Insurance organizations should start by aligning their data initiatives with their business strategies to identify their priorities. As they begin the necessary transformation of every element of the data flow – from identification to storage, processing, and activation – they need to create the right operating model for democratizing relevant use cases and closing the skills gap. In parallel, they need to modernize their systems, connect disparate functions and processes, and employ API and cloud-based architectures to ensure they create strong, productive external partnerships.

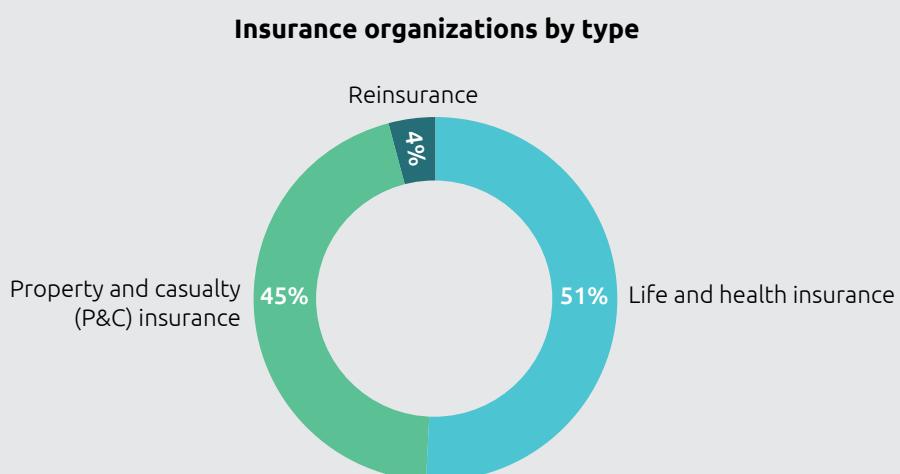
The journey, although daunting for those just starting out, offers massive rewards, which are available even during the transformation process to those organizations who embrace it wholeheartedly. Anecdotal evidence presented in this report clearly illustrates how insurers are already benefitting from at-scale implementations of data initiatives across all functions.

Research Methodology

We interviewed 510 executives across 204 insurance organizations. We required each organization to have one data specialist along with one business executive for every business line. Further, we conducted 10 interviews of insurance executives to gain their views and expertise on these insurance organizations.

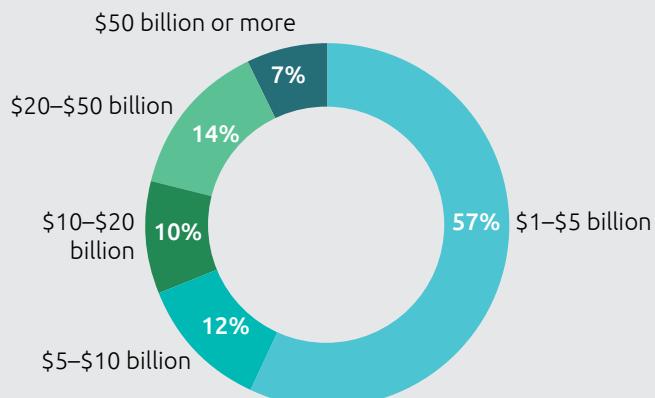


Source: Capgemini Research Institute, Data Mastery in Insurance survey, September–October 2021, N=204 insurance organizations. Percentages are rounded off to the nearest integer and may not sum to 100.

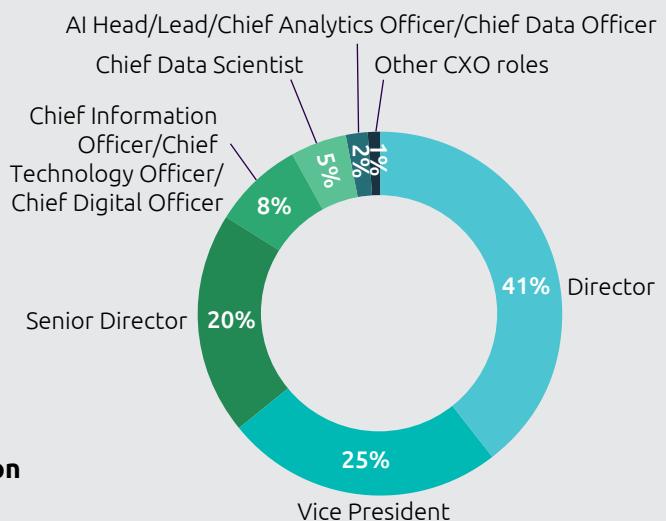


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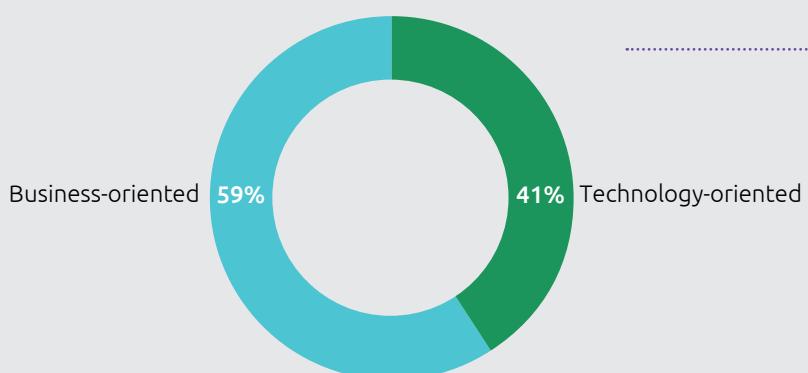
Insurance organizations by revenue



Executive view by role



Executive view by function



The study findings reflect the views of the people who responded to our online questionnaire for this research and are aimed at providing directional guidance. Please refer to the methodology for details of respondents and get in touch with a Capgemini expert to understand specific implications.

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The Capgemini Research Institute is Capgemini's in-house think tank on all things digital. The Institute publishes research on the impact of digital technologies on large traditional businesses. The team draws on the worldwide network of Capgemini experts and works closely with academic and technology partners. The Institute has dedicated research centers in India, Singapore, the United Kingdom, and the United States. It was recently ranked number one in the world for the quality of its research by independent analysts.

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NEXT STOP FOR DYNAMIC PRICING: INSURANCE CARRIERS

Next generation pricing models, powered by new technologies, offer an opportunity for insurers to leverage the massive quantities of customer data and migration of analytics to public clouds to drive towards real-time personalized rates. Dynamic pricing enables carriers to continuously respond to changing market realities and improve their competitive advantage by adjusting their pricing structures rapidly to address market threats or opportunities.

SEAMLESS IMPLEMENTATION OF A DYNAMIC PRICING PLATFORM CUSTOMIZED TO YOUR NEEDS

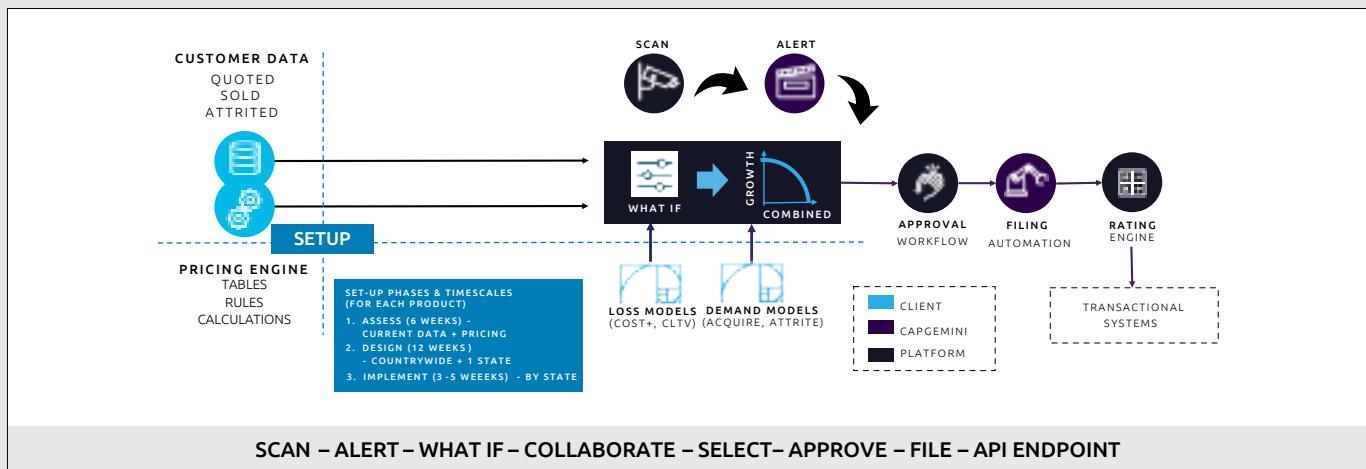
Our approach positions your organization to modernize your pricing strategy quickly and effectively by following a three-phase implementation program. It begins with a six-week assessment where we evaluate your current pricing structure and its complexity and establish a timeline for execution.

In the second phase, we design the pricing platform data inflow and calculation engines customized to your unique needs. This phase covers the countrywide pricing rules and state specific rules for the first state and takes approximately three months. The timeframe for implementing pricing structures for subsequent states is significantly shorter,

enabling efficient pricing model deployment cycles. Our world class dynamic pricing platform includes an in-depth validation component that identifies and remediates all issues due to errors in legacy data and pricing structures. This ensures pricing models operate seamlessly once deployed into production, so live quoting services experience significantly less downtime.

In the execution phase, we fully enable one of the most important capabilities of the platform, the what-if scenario tool. During this phase, historical customer data, pricing structures and all relevant analytical models such as loss, expense, demand, and lifetime value models are imported into the new platform and tested to ensure seamless functionality. The execution phase typically takes about three months for the first state. The what-if scenario tool enables product managers to evaluate the impacts of different assumptions and respond to changes or market threats significantly faster.

Once the system is operational, it scans the market and sends alerts when it identifies potential market threats that might benefit from analysis. The platform prioritizes these alerts based on threat level and highlights where action is needed. These alerts drive a what-if analysis that helps product managers evaluate and select the pricing structure that best aligns to the organization's business goals. The desired structure is then pushed through the approval process, DOI filings, and rating updates.



EXPECTED OUTCOMES

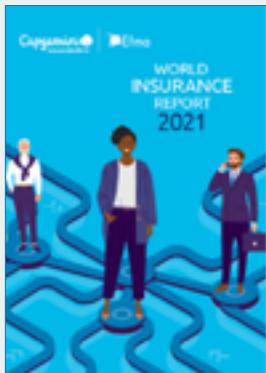
The benefits of implementing the Capgemini dynamic pricing platform are substantial. **In our experience, carriers typically realize several key improvements using the Capgemini platform:**

- **Reduce the sense-tweak-select-deploy** process from 38 weeks to 2-3 weeks if no DOI approval is needed and ~12 weeks where changes must be submitted to the DOI
- **Eliminate the rate validation process** by using a rating engine – a significant savings for most carriers
- **Improve speed to market by 70-90%**

- For LOBs that are heavily driven by technical pricing (e.g., Personal and Small Commercial), 1.5-3% improvements in combined ratio can be achieved
- Increase direct premiums written by 10-15% annually
- For LOBs that are heavily underwritten, significant improvements (up to 50%) in the time to quote as well as risk selection can be achieved

Competing in today's cloud-driven world requires insurers to adapt quickly and continuously to meet customer demands. Dynamic pricing is becoming a critical component to acquiring and retaining customers. To learn more about Capgemini's dynamic pricing offerings, visit us at capgemini.com.

Discover more about our research:



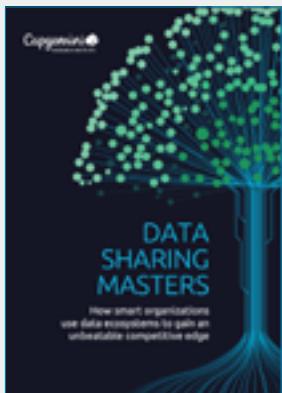
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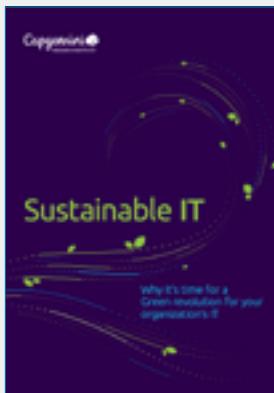
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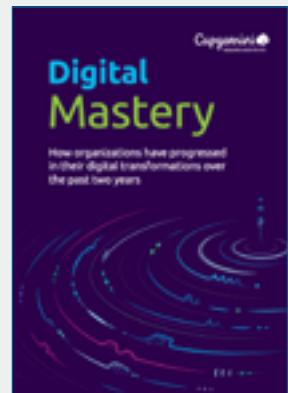
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