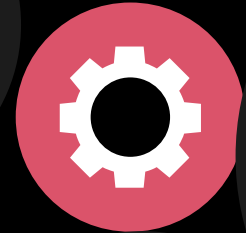


PwC Global Actuarial Modernisation Survey



PwC Global Actuarial Modernisation Survey



The insurance industry is undergoing significant change and transformation in a volatile, uncertain, complex and ambiguous world.

Being an integral part of insurance companies, actuarial departments play a crucial role in the ongoing change of the industry—and the transformation of actuarial departments is a central cornerstone to drive this change.

Hence, **Actuarial Modernisation is a necessity for attaining company-wide goals.**

At PwC, we support actuarial modernisation journeys across the market and across the globe with our deep industry-wide expertise and our strong global network.

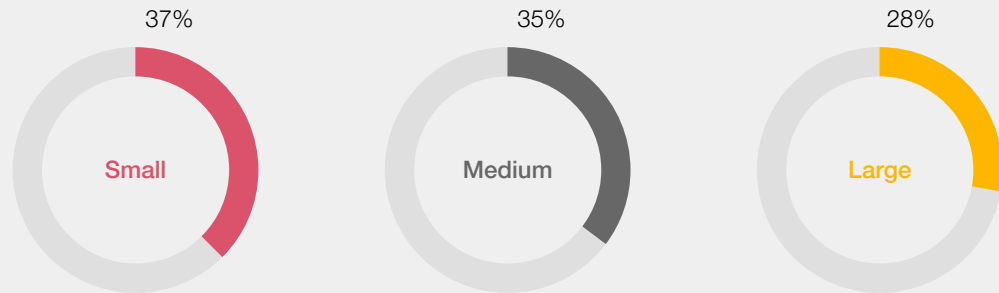
The importance of achieving a successful actuarial modernisation has never been more important, after surveys in 2018 and 2020, our third global actuarial modernisation survey is our largest survey ever with over 200 companies participating.

We hope you will enjoy reading this report and find it helpful; and that it will spark discussions on how actuaries can support the insurance transformation in the best possible way.

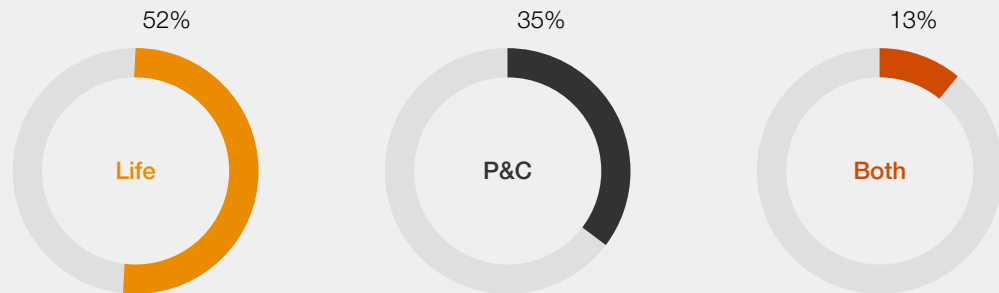
Methodology

200+ survey participants

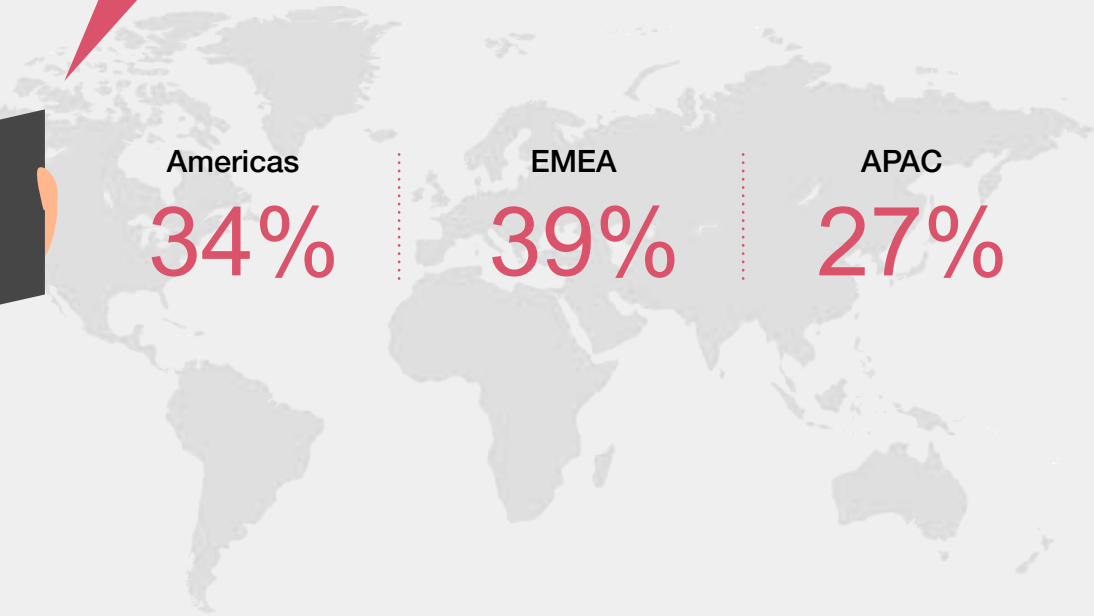
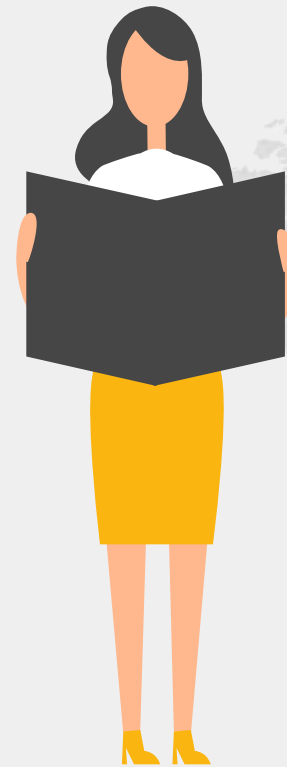
Size



Industry



We would like to express our sincere gratitude to all of the participants who took the time to contribute to our survey.



Executive summary

Multiple drivers of initiatives

The insurance industry is undergoing unprecedented change and a well-functioning actuarial function of the future is critical to support the rising demand for deeper insights for the management to better manage finance, risk and capital of insurance companies.

Nearly all survey participants indicate two or more drivers spurring their need to modernise. Not surprisingly, the top catalysts are improvements to process efficiency (77%), regulatory and accounting changes (63%), enhanced process quality (60%) and improved management insights (58%).

The implementation of IFRS 17, additional future ESG requirements as well as new IT requirements are putting actuaries under pressure and forcing change. The amount of work for actuaries is enormous—efficiency is not negotiable.

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Modernisation roadmap

Modernisation initiatives are well underway, with around 75% of participants (up from 70% in 2020) embarking on multi-year modernisation journeys. However, only 14% have a clear modernisation roadmap in place, while others need to move quickly to get a good handle on their plans and budgets. Every third insurer is expected to invest at least US\$5m over the next five years on actuarial modernisation, about every tenth insurer at least US\$20m.

Insurers recognise the importance of modernisation but need to better manage the pace of execution. Half of the participants are two or more years into their modernisation journey, yet around 35% still have at least another three years to go on their current roadmap. Internal resource capacity is cited as the main constraint throttling the speed of modernisation. But if day-to-day business is always prioritised over modernisation, the pressure only increases.

Page 7

Process excellence

Despite multiple years of modernisation efforts underway, respondents cite that a significant level of manual processing still exists across the actuarial function. Process efficiency is now a top priority, as a contribution to the insurer's overall efficiency and automation strategy and as an essential way of dealing with the problem of resource shortages.

Quick insights and direct steering impulses are a decisive success factor for insurers and actuaries need to deliver results much faster. One example: most participants are striving towards a goal of saving at least three days from their financial close cycle. This is particularly true for the new IFRS 17 closing process, where survey respondents indicated that they are currently 10 days behind their target state.

Page 8

Data and technology

Most survey participants indicated that they plan most technology implementations in the areas of Business Intelligence (BI) tools and cloud computing in the medium term. Around 78% of actuarial functions currently use or plan to adopt cloud technology in the next years, indicating a clear consensus and recognition of the benefits of this technology. However, there is a lack of industry consensus on the value of certain tools, such as Robotic Process Automation (RPA) and Artificial Intelligence/ Machine Learning (AI/ML). Are actuaries open enough to these technologies?

Page 9

75%

of respondents are currently undergoing an actuarial modernisation journey

Executive summary

TOM for advanced analytics

The development of advanced technologies raises the question about the future company's target operating model (TOM) for data analytics. Currently, there is no predominant operating model. 17% of the survey participants stated that data analytics solutions are owned and driven exclusively by their actuarial team. 22% of respondents state that no specific data analytics organisation is in place.

Page 10

Actuarial skill set landscape

Overall, the proficiency of actuaries lies in more traditional skill sets such as financial reporting, regulatory knowledge, financial planning and analysis, and product development and pricing. Comparatively, there is only a baseline level of proficiency for most companies in the 'skills of the future', such as advanced data analytics. In fact, 43% of respondents identified advanced data analytics as a key area in which they would like to build competencies. There is a gap between interest and current skill levels in some of the newer subject areas.

Page 11

Bridging the knowledge gap

As the role of the actuary expands to include new and 'non-traditional' subject areas, with it comes the need to develop and enhance skill sets to accommodate these specialty functions within the actuarial function. The strongest demand for specialist roles is concentrated in key areas such as data scientists (85%), business analysts (67%), data engineers (66%) and actuarial platform engineers (63%).

Currently, upskilling is the preferred method to meet demand in most areas for the actuarial function's staff. However, this will not be enough to close the knowledge and resource gap. To address this challenge, companies consider accelerating their modernisation initiatives to reduce the process burden on their actuaries and allow them to focus better; recruit 'non-actuarial' professionals to complement what their actuaries do, outsource certain non-core tasks - and collaborate better.

Page 12

Importance of collaboration

While actuaries are involved in many key strategic initiatives, their role is often secondary to finance or IT functions. Only a small amount of company-wide modernisation initiatives are led or actively sponsored by the actuarial department.

As IT is often sponsoring these initiatives, it is key for actuaries to collaborate with the IT departments. It is crucial to ensure a well-staffed interface between the actuarial function and IT.

Many of the emerging topics are cross-functional, requiring joint approaches. Actuarial modernisation is typically part of a wider FAIR (finance, actuarial, investment and risk) transformation. Raising awareness of actuarial priorities is generally important, but silos must be avoided. Therefore, elevating collaborations with other departments should be a focus for actuarial functions.

Page 13



Multiple drivers of initiatives

Actuarial modernisation initiatives contribute to the enterprise strategy. However, initiatives from actuarial departments should be promoted more strongly, as in most cases they directly contribute to the company's success. One initiative that serves as an excellent example is process automation and workflow orchestration.

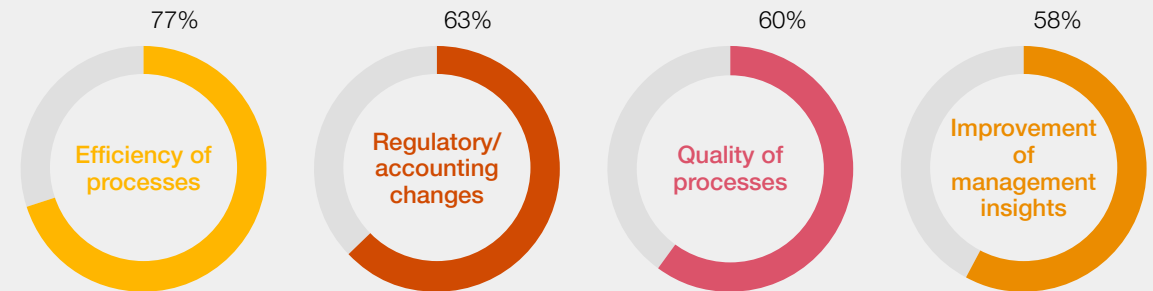
77%

of respondents say efficiency of processes is the main impetus for actuarial modernisation initiatives.

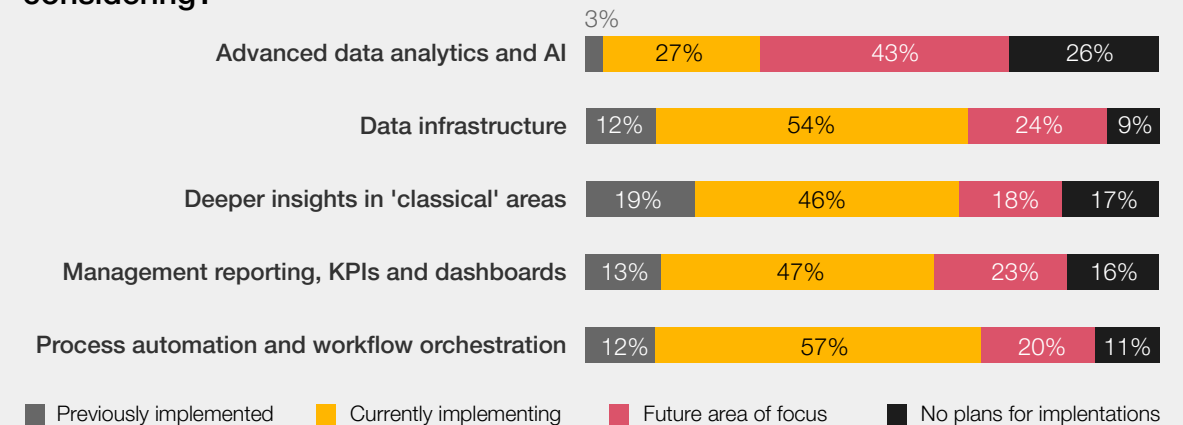
There are multiple drivers of actuarial modernisation initiatives. 77% of respondents say efficiency of process is the main impetus for actuarial modernisation initiatives, followed by regulatory and accounting changes (63%), quality of process (6%) and improvement of management insights (58%).

We see that insurance companies are undertaking many actuarial modernisation initiatives. 57% of respondents state they are currently pursuing initiatives in process automation and workflow orchestration, followed by initiatives in the area of data infrastructure at 54%. Both initiatives pay directly into key drivers of modernisation for companies—cost savings, creation of opportunities to redeploy staff to essential tasks and enhancing management insights. One emerging topic is advanced data analytics and AI. 43% of respondents state that they are planning actuarial modernisation in this area in the future.

Question: What has been/is the main impetus for initiating actuarial modernisation initiatives in your company?



Question: What actuarial modernisation initiatives is your company considering?



Modernisation roadmap

Actuarial modernisation initiatives have gained increased traction compared to our 2020 survey. Companies are making significant investments across modernisation initiatives, although actuarial modernisation is often still in an early adoption phase. Having a well-defined roadmap is a critical tool that can help determine resources required to achieve company's goals.

37% of respondents plan to invest more than US\$5m in actuarial modernisation initiatives over the next five years, of which a quarter plan to invest more than US\$20m. 34% of our survey participants state that they are between 1-2 years into their modernisation plans. Over 29% of respondents indicate that it will take more than three years to reach their target state.

Across both P&C and life companies, only a limited number of respondents indicate that they have a detailed modernisation roadmap developed to guide their modernisation journey.

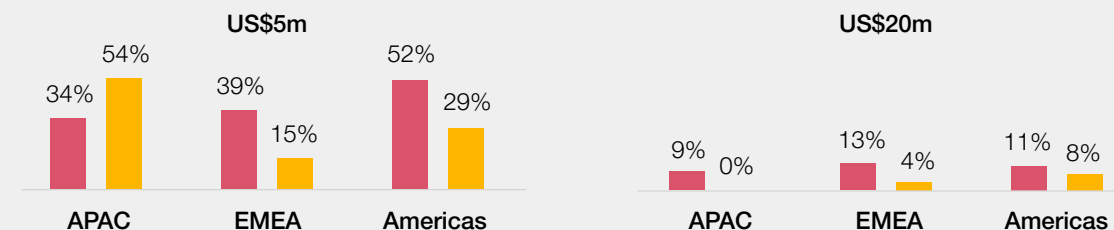
A detailed roadmap provides greater certainty around the costs and effort required for modernisation initiatives. Firms without a roadmap often struggle to monitor process and control costs. Insurers with a well-defined roadmap have a clear advantage over those who do not have one.

42%

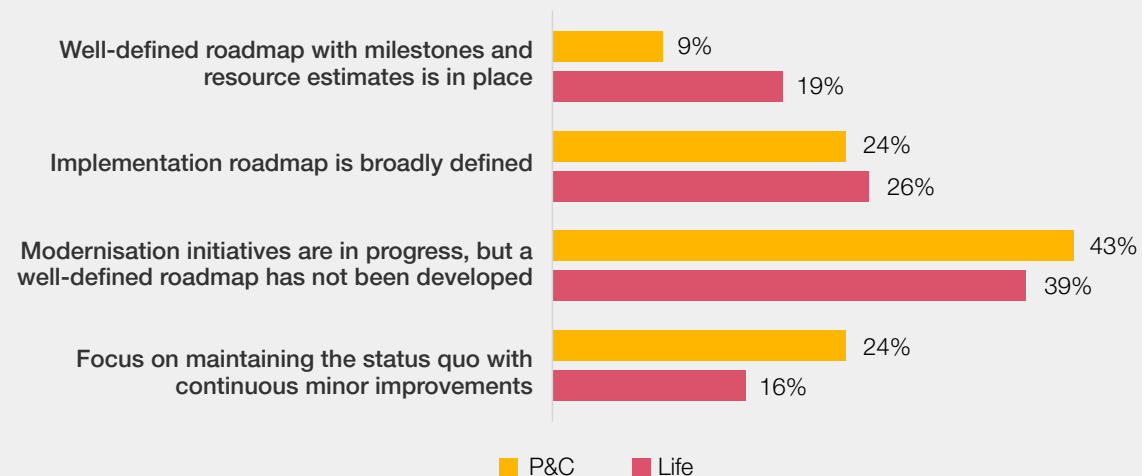
of survey respondents have started modernisation initiatives but have no well defined roadmap in place.

Question: How much do you expect your actuarial modernisation initiative(s) will cost in total over the next 5 years?

Percentage of survey respondents who expect to spend a minimum of



Question: How would you describe the current status of your actuarial modernisation roadmap?



Process excellence

The overall level of process automation within the actuarial function of respondents is relatively low. This is a key focus area for many companies, as they seek to automate and optimise their actuarial processes, especially actuarial core processes. While some automation has been implemented, there is still significant room for improvement and optimisation.

>55%

respondents indicate that their teams are spending more than 50% of their time on data.

Despite the advancements in (actuarial) technology and software, there is still a significant reliance on manual processes across several key actuarial functions, with limited use of automation. Data constraints continue to be a key issue explaining this lack of automation.

Actuaries are spending multiple days a week on data aggregation, scrubbing and manipulating—significantly limiting the time that they can spend on value-added analysis.

This lack of automation hinders the ability to free up time for value-added activities and is a major contributor to the largest modernisation constraint—the lack of capacity due to a focus on business as usual operations.

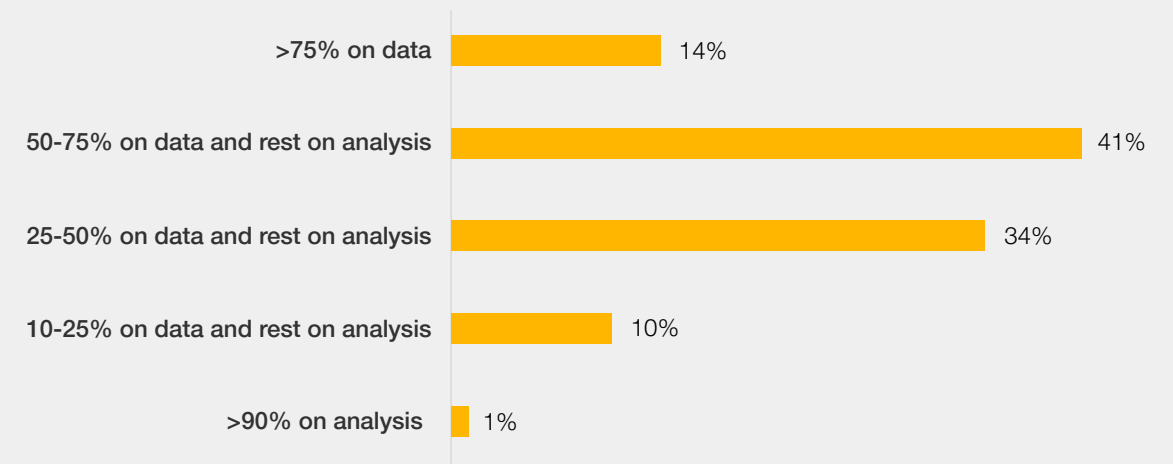
In essence, the limited use of automation is a key obstacle to modernising actuarial functions and improving efficiency.

To improve the situation, it is crucial to prioritise and focus on impactful initiatives. This is especially important as the demand for quick delivery will only continue to escalate.

Currently, faster actuarial analyses and quick decision-making sets insurers apart from

competitors. In the future, execution speed will be one of the most important success factors for actuarial processes, especially in product development, responding to new developments and meeting requirements.

Question: Select the best current state description of the percentage of time the actuaries spent on data versus analysis and reporting.



Data and technology

Adoption of technology is a key factor for efficiency gains and this is recognised by many actuarial departments. However, the rate of adoption varies greatly between companies.

Roughly half of actuarial functions are currently using Business Intelligence (BI) tools, with 20% expecting to adopt these type of tools in the next 1-2 years. Nearly 40% of respondents are already using cloud computing, with more than 35% expecting this technology to be added in the next five years. Both tools provide actuarial functions with flexibility to better connect with cross-functional teams and bring more effective insights and efficient processes.

Despite the benefits of BI tools and cloud computing, around 25% of respondents have no plans to adopt them. About half of the actuaries is not convinced that RPA can be a solution for their problems.

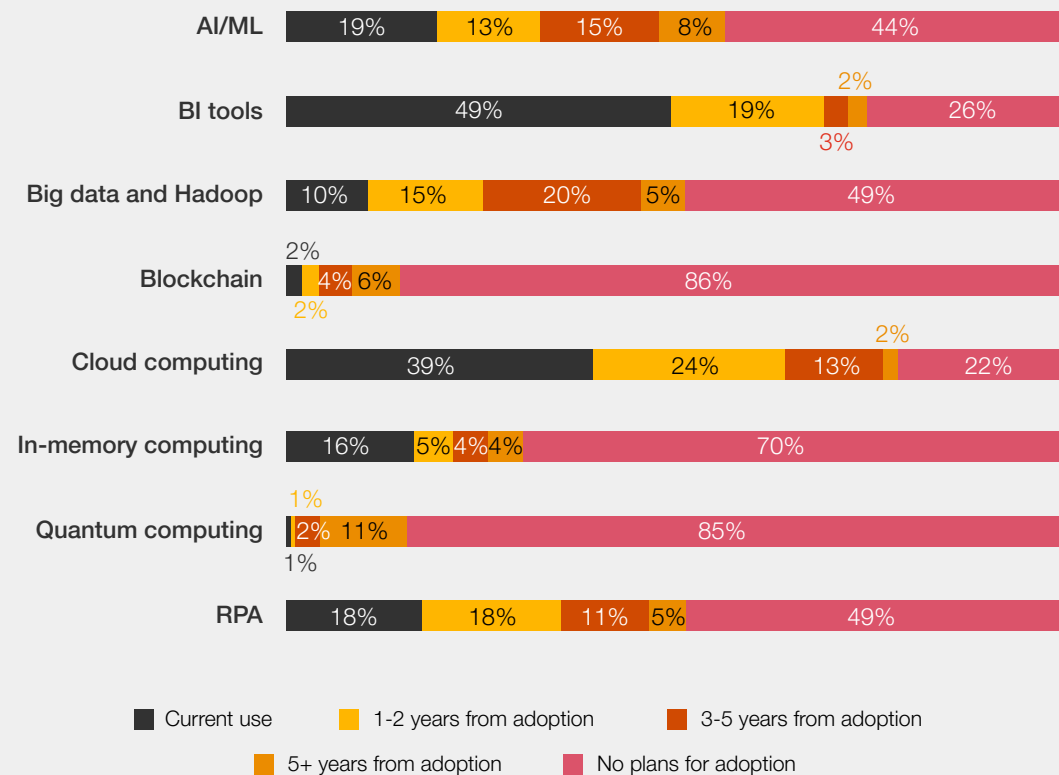
Based on the survey results, there appears to be no industry consensus on applicability of AI/ML. However, it should be noted that the survey was conducted before the recent spike in public interest in generative AI. Therefore, we would expect a different outcome today.

For quantum and in-memory computing as well as blockchain, the added value and benefits do not (yet) seem compelling enough for implementation.

>76%

of actuarial functions are currently using or planning to adopt cloud computing in the next five years.

Question: Select what best describes your current utilisation of advanced technologies and how long it will take to fully adopt these technologies.



TOM for advanced analytics

The selection of the appropriate operational concept is critical for the success of the advanced analytics strategy and a successful identification, development and deployment of use cases. Among respondents, there is no uniform operating model for data analytics.

Data analytics solutions are embedded in many actuarial departments. 18% of actuaries are already using AI or machine learning techniques, and another 12% are only 1-2 years away from doing so.

Based on their skill set, actuaries can play a natural and decisive role in this area. In 17% of the companies surveyed, the actuarial department is in the driving seat. But, as seen, often not all the necessary competences are present in the actuarial department. And in most cases, a central unit specifically dedicated to the successful orchestration and implementation of a company-wide priority simply makes sense.

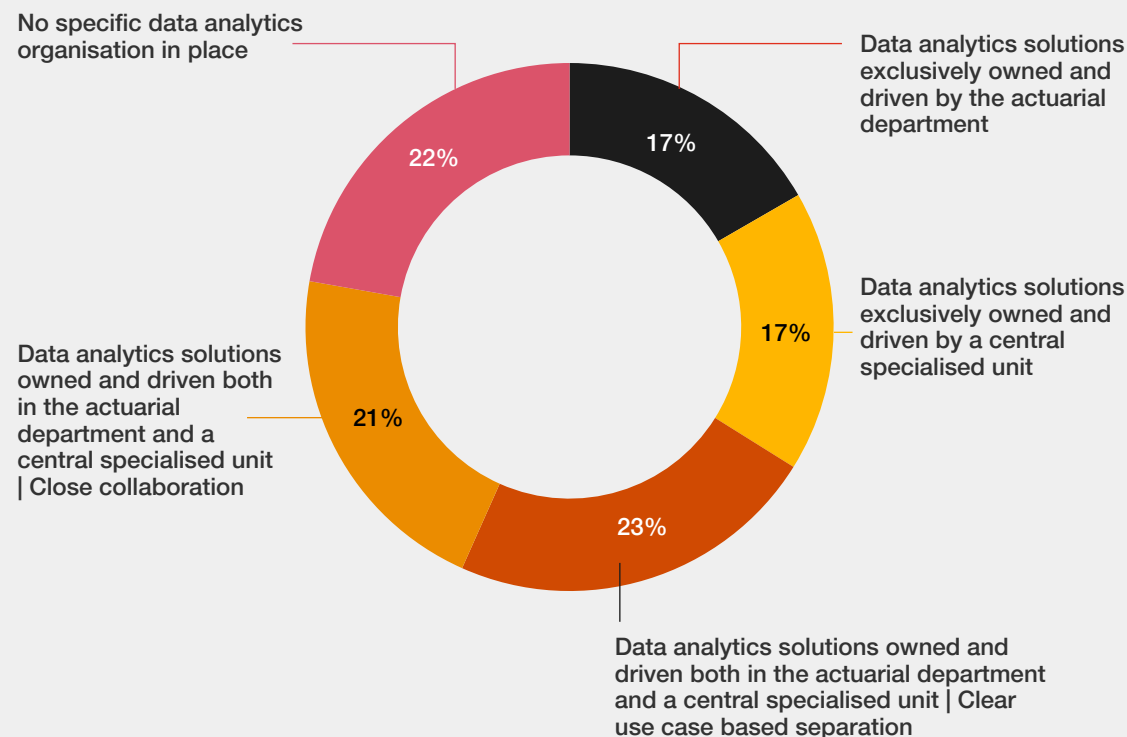
There is no one-fits-all solution. But with 61% of companies involving actuaries in their advanced data analytics initiatives, this looks like a good idea.



17%

of all respondents indicate that data analytics solutions are exclusively owned and driven by the actuarial department.

Question: Please describe your company's operating model for data analytics.



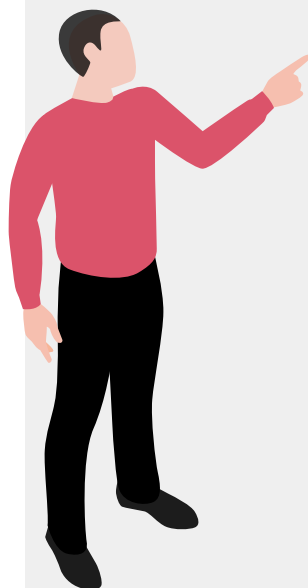
Actuarial skill set landscape

The landscape of actuarial skills is diverse and constantly evolving. Certain 'skills of the future' should be prioritised as actuarial functions seek to embrace emerging fields and non-traditional roles for their teams.

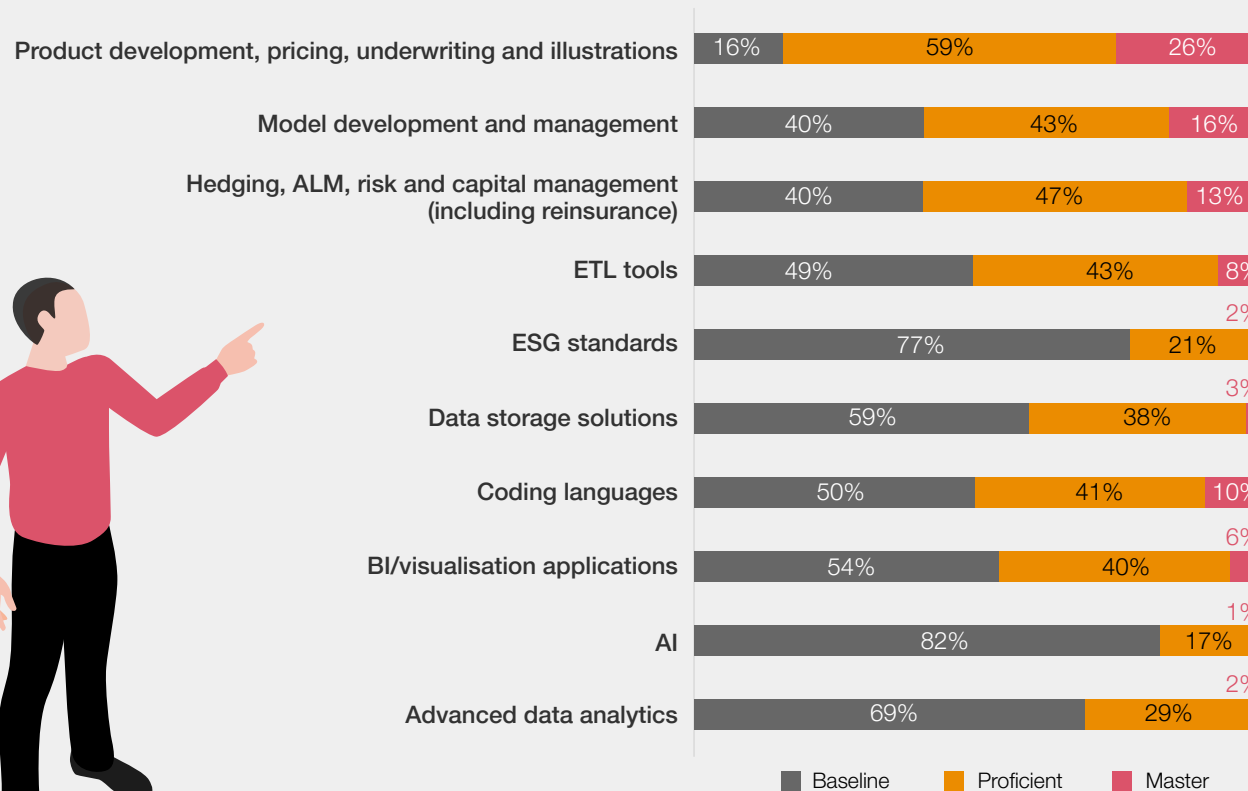
Not surprisingly, the survey findings indicate that actuaries demonstrate a high level of proficiency in traditional skill sets such as financial reporting, regulatory knowledge, financial planning and analysis, as well as product development and pricing.

In all areas, there is interest in further qualification and development of expertise, but especially in the emerging areas, such as advanced data analytics, BI/visualisation applications and ESG, there is a remarkable discrepancy between actual competence and interest.

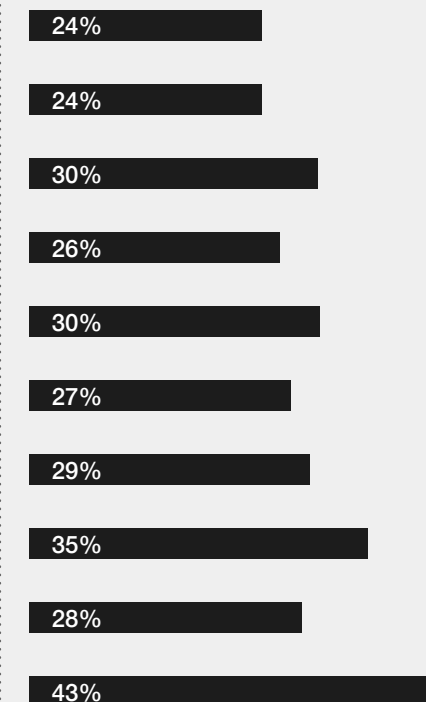
Developing strategies to bridge these gaps and enhance actuarial skills in these areas is imperative.



Question: What is the level of proficiency of your actuarial team for the following skills?



Question: Which skills are you interested in developing in your teams?



Bridging the knowledge gap

Upskilling the current workforce is the essential bridge to close knowledge gaps, especially in the non-traditional actuarial fields. Around three quarters of companies are looking to either upskill or embed data science skills into their actuarial function.

There is rising external pressure on actuaries to increase their efficiency by using new tools and techniques, or take on new tasks. Meeting this expectation is increasingly becoming a challenge for actuarial departments. Data engineers, platform engineers and data scientists are a few examples of professions that have gained prominence in actuarial departments in recent years.

They are driving a number of industry sectors in a similar way to how actuaries have traditionally influenced the insurance sector. Also, human-centric skills like project management expertise are recognised as key for success for actuaries. We see many differences in the types of specialists being searched for, and variations in strategies used to fill the positions being searched for.

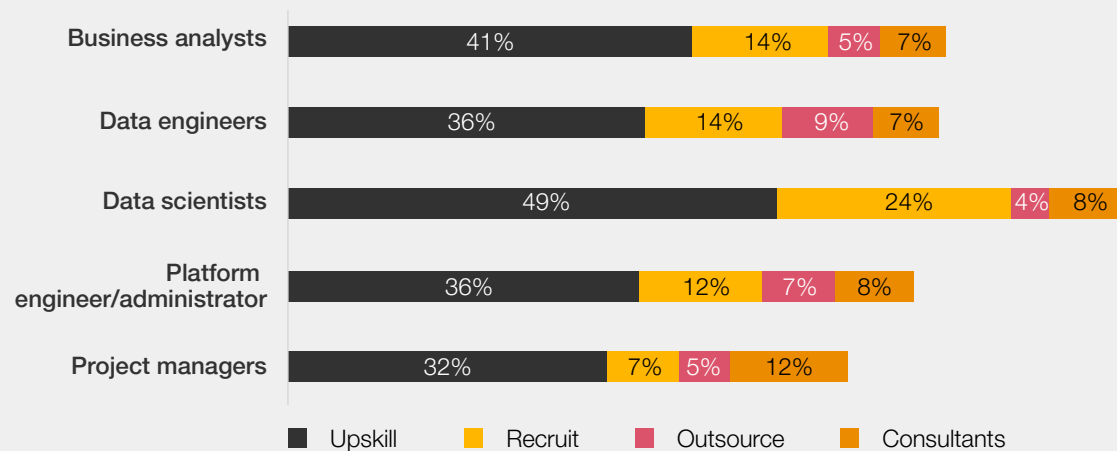
Training in general is important for actuaries, but upskilling only will not be enough to close the knowledge and resource gap. Companies consider focusing/specialising, recruiting 'non-actuarial' professionals and outsourcing or consultants.



70%

of companies see the need to develop or attract data science related skills within their actuarial function.

Question: What additional specialists are you looking for to complement or embed within your actuarial function?



Importance of collaboration

Actuaries play an integral role in many enterprise-wide modernisation initiatives. However, it's often other departments that are driving and sponsoring these initiatives. It's crucial for actuaries to establish strong and proactive cross-functional collaboration with other departments.

No specific functional area can be singled out as being the primary sponsor of modernisation initiatives. However, IT is often a key sponsor of data-related initiatives (such as enterprise data strategy), which are impactful for the actuarial function. Partnering with IT sponsors is key to bringing actuaries a seat at the table and a spotlight on actuarial priorities that can benefit from enterprise investments.

However, cooperation with all departments is crucial for actuaries to be successful and will continue to increase in importance. For advanced analytics initiatives and for initiatives seeking to improve management insights, actuarial departments will be dependent on data from multiple departments. For example, data on customer behaviour will likely come from front-desk oriented departments.

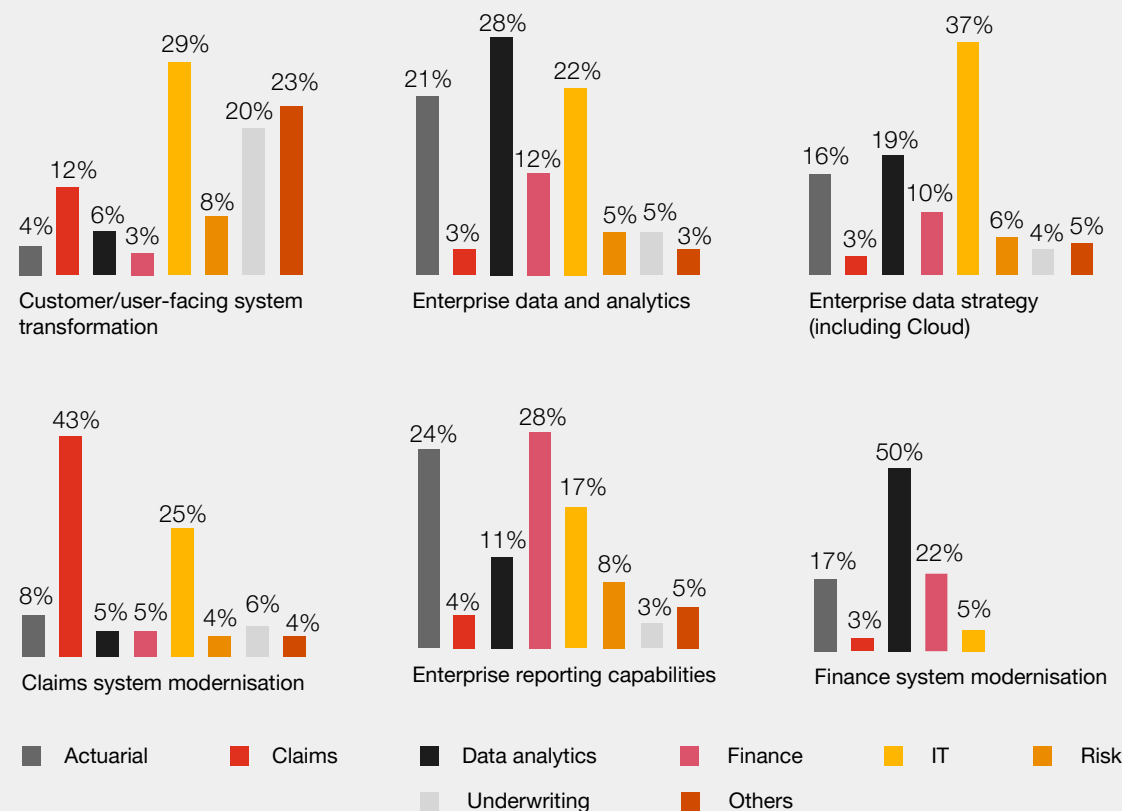
For cross-functional projects to succeed, it is important to have actuaries with strong communication and technical skills at the interfaces.



>84%

of participants are prioritising cloud data strategy, analytics and finance system modernisation as the top three enterprise-driven initiatives.

Question: Which functional area is sponsoring the modernisation initiatives?



What is needed: Initiate the change

Actuarial modernisation forms the basis to achieve many essential goals of an actuarial department and it often contributes directly to enterprise-wide success. Several points are important for a successful implementation.

1. Make actuarial modernisation your top priority. Develop a clear vision and a future proof target state. Derive a clear implementation roadmap with quick wins, realised benefits and tangible outcomes.
2. Increase the level of your process automation and focus on initiatives with the highest outcome to effort ratio. This will free up your resources and convince stakeholders to invest in your actuarial modernisation initiatives.
3. Embrace new technologies and be open minded. Stay informed about the potential benefits of cloud, RPA and AI technologies, and keep track of their ongoing advancements.
4. Clarify and improve interfaces to ensure effective collaboration between your actuarial function and other departments, particularly IT and Chief Data Officer. Clearly define the respective responsibilities
5. Handle actuarial modernisation as an integral part of a wider FAIR (finance, actuarial, investment and risk) transformation. Take an active leadership role in company-wide modernisation initiatives that align with your goals.
6. Don't forget your people. Managing and embracing the process and technology changes are key to your actuaries embracing and benefiting from your actuarial modernisation investment.
7. Focus on your key initiatives and get help where it is needed. At PwC, we are here for you. Benefit from our knowledge and contact us.



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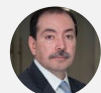
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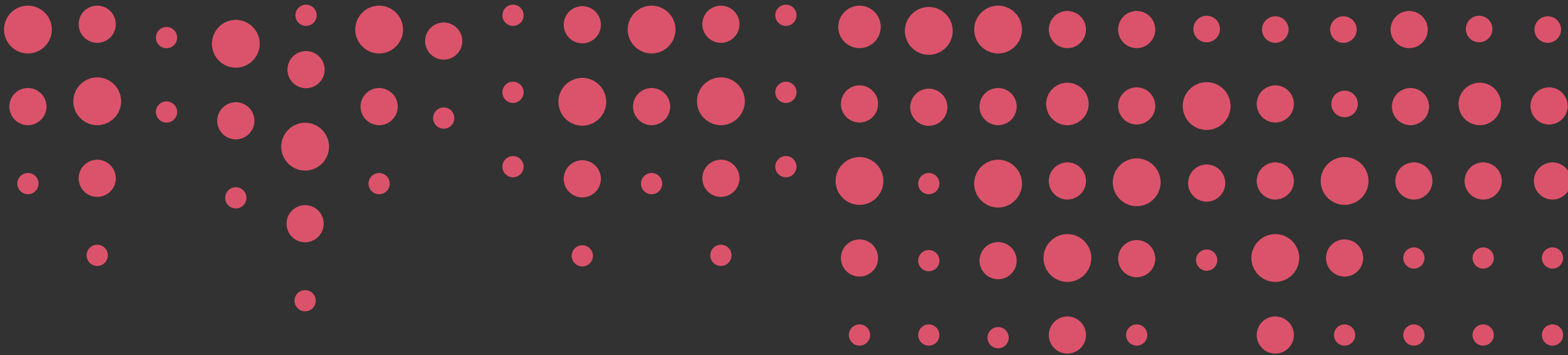
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Thank you

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