



Future Skills in Reinsurance

**A concept for identifying and closing skills gaps
in reinsurance companies**

**A study by the Department of Banking, Finance,
Insurance**

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Imprint

Publisher
ZHAW School of Management and Law
St.-Georgen-Platz 2
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www.zhaw.ch/en/sml/institutes-centres/iri/

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January 2021

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Foreword

Our world is changing – and this is nothing new. What is new is the speed and pervasive nature of technology-driven advances and their impact, which demands adaptation, evolution, and – in some cases – disruption. The reinsurance industry will meet the ongoing challenges and the opportunities ahead with communities of continuously upskilling experts.

From a life spent in this industry, I can say that we have always adapted, always learned, and always improved. I can also say that never before have external forces required us to change as much and at such speed. We have always been a data-driven business, but never before has there been so much easily available and accessible data. A world that delivers a continuous flow of rich data enables the creation of next generation underwriting. The way we model, understand and price risk, is changing. We will also see new products and services, new players and new partnerships, driven by technology, data and digital ecosystems.

The next ten years are of fundamental importance to the reinsurance industry. We must transform from data-supported companies to data-led companies. Technological advances deliver untold potential – and I'm convinced that we will realize that potential with intelligent automation – a hybridized process combining the best of both human and machine intelligence. Between now and 2030, experts across our industry must upskill to acquire the digital savvy we will need to succeed. We currently have four generations in our workforce, each requiring a different approach, but each needing to evolve. As for new talent, I expect educational institutions to teach with our tech-driven industry in mind. As we advance, we need underwriters, engineers and actuaries – experts across the entire value chain – infused with in-depth data skills.

I invite you to immerse yourself in this study. Assessments are essential, and this study will help determine the skills required for our dynamically changing environment. This goes, of course, far beyond technology. It may appear counterintuitive initially, but I believe that technological advances will increasingly allow us to bring more of our inherently human skills to the fore. Our 'soft skills' need just as much attention, focus and development since these will lead us into a more sustainable and inclusive future with empathy, creativity and fairness.



Thierry Léger,
Group Chief Underwriting Officer

Swiss Reinsurance Company Ltd.

Management Summary

The reinsurance sector is currently going through **turbulent times**. External challenges such as climate change, geopolitical uncertainties, and intensive competition alongside the development of alternative market structures, stricter regulation, and continuing digitalization all increase pressure on reinsurance companies. Tried and tested business models are suddenly being put to the test, and adjustments are necessary to maintain the ability of companies to operate profitably in the long term. Since the reinsurance sector relies primarily on the knowledge and expertise of its generally highly qualified staff – it is known as a **knowledge industry** (Swiss Re, 2019a; SCOR, 2020) for a good reason – the **right skills profile**¹ is vital.

It is essential that the skills set within a company can be adapted as and when necessary to meet the requirements of a dynamic environment. The effect of this is to close any gaps in available expertise or, better still, ensure that skills gaps do not arise in the first place. The purpose of this study is

- to help determine which skills will be required by the reinsurance companies of tomorrow,
- to identify any emerging skills gaps, and
- to highlight ways of closing these gaps.

Considering **industry-relevant parameters, five scenarios** that may face the reinsurance sector in the year 2030 will be developed. These will serve as a basis for diagnosing the possible impact on the **future labor market situation** and the **future skills profiles in five selected core areas** of a reinsurance company (business development, client management, underwriting, operations, and claims). The next step will be to identify skills gaps by comparing current skills profiles with those required in the future. In conclusion, measures that could be implemented as part of the drive to close these reinsurance company gaps are discussed.

The findings – which include assessments by managers in the reinsurance business – are as follows:

Scenarios – The Reinsurance Business of the Future

Of the **scenarios** set out in this study (**static, digital, innovative, and disruptive**), the digital and innovative scenarios are considered most likely to emerge by the year 2030. A combination of these two scenarios is even more probable.

In both scenarios, reinsurance companies increasingly supply tailored products and services, promote medium to heavy use of digital technologies, offer more risk-related consultancy services in addition to classical underwriting and commit – within a limited framework – to alternative market structures like those reflected in digital distribution platforms or white label solutions.

Developments in the Employment Situation

Given the continuous rise in the number of people employed in the sector in recent years, it can be assumed that the number of employees in reinsurance will remain stable or perhaps even fall depending on the scenario. The reasons for this are sustained cost pressures coupled with uncertainty regarding prospects for the future. Depending on the degree of digitalization achieved, it is in the areas with administrative duties – underwriting, claims management, and contract management – that varying numbers of jobs will be lost. In contrast, the number of employees in business development and digital technology seems set to increase, admittedly starting from a lower level.

¹ The term 'skills' relates within the framework of this study to competencies in the broader sense of the word. It encompasses the potential of an employee to deal efficiently with the requirements of the position and work situations in practice. This potential includes not only the knowledge, abilities, and proficiency needed for problem solving but also the motivation, willingness, and ability to resolve problems responsibly in a social environment in ways appropriate to the situation in hand (cf. Euler, 2013).

Changes in Skills Profiles

Specialized, primary **reinsurance-specific skills** will remain essential, and overall, requirements in this area of expertise will continue to rise. This is mainly due to the increasing complexity of products and services on offer, a rise in the number of cross-departmental activities, and greater networking in digital eco-systems. This calls for higher levels of expertise in primary insurance products and services, more consultancy expertise, and more thorough knowledge of the parameters that significantly impact the value chains of the primary insurers and reinsurers.

- By the year 2030, it will be necessary for virtually all employees in reinsurance companies to have advanced **digital skills**. This applies particularly to the core functional areas of underwriting, claims, and operations. For many employees in these key areas, the ability to use digital platforms and tools as part of e.g. predictive modeling, machine learning, and blockchain will be part of the essential skill set.
- **Methodological, social, and self-competencies**², referred to later in this study as ‘soft skills’, will change in the near future as requirements in terms of analytical thinking, creativity, and readiness to embrace innovation, rise significantly. In addition, agility, adaptability, the ability to work in cross-functional and cross-company teams, to work independently, and a willingness to engage in continuous learning will become core skills for employees in reinsurance companies.

Options and Recommendations for Closing Skills Gaps

- As both reinsurance specialists and digital experts are in limited supply in the jobs market, a **hiring and contracting** strategy has only moderate success in closing existing skills gaps.
- It is, therefore, vital to focus on **upskilling** employees. In addition to traditional measures such as **on-the-job training, project work, and job-rotation**, there are **tailor-made training and development concepts** capable of reacting swiftly and flexibly to changes in the external and internal environment of the company.
 - An extensive range of training courses delivered by external providers is available to promote **digital and soft skills**. However, **future-oriented training or development courses available in the short term that deal with (re)insurance-related topics either specifically or in combination with digital content** are few and far between. As a rule, only large-scale insurance companies can afford a comprehensive training and development organization; however, the associated cost means fewer and fewer are prepared to do so. Consequently, there are increasing efforts to set up internal **knowledge-sharing platforms**.
 - However, when reinsurance companies implement upskilling measures, their gaze remains firmly inward-looking while relevant developments in other fields of industry and the technology sector are frequently overlooked. **Closer collaboration between reinsurance companies and stakeholders with whom they wish to participate in (digital) eco-systems** such as clients, educational institutions, insurtechs, etc., is therefore advisable and permits companies to create flexible, personalized, up-to-the-minute education and training opportunities, particularly when digital platforms are used.
 - This must go together with **systematic, long-term programs to identify and close skills gaps**. Ultimately, responsibility for adapting the skills profiles lies not only with management but also with each individual employee. Management must establish a company-wide culture of learning, and in turn, staff must accept this culture of learning and be proactive in adapting their skills to the challenges of the future.

² Term based on Euroforum (2019).

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1. Overview

1.1. BACKGROUND AND RESEARCH QUESTIONS

The global reinsurance sector is facing massive challenges. Innovation, digitalization, disruption, and consolidation are just a few of the keywords currently under intense discussion in the industry (Deloitte, 2018). Like the insurance industry as a whole, the reinsurance sector is evolving more quickly than ever before. The primary triggers for this change are as follows:

- changes in the demand behavior of clients,
- Increased use of digital technologies in the primary insurance and reinsurance market,
- significant changes in the risk landscape caused by climate change, the emergence of new types of risk, increasing regulation on a national and supranational level, and volatile geopolitical parameters,
- unpredictable macro-economic developments in an environment of consistently low-interest rates and the COVID-19 pandemic, and
- the development of alternative market structures because of the emergence of insurtechs and digital ecosystems, the sustained inflow of alternative capital, and the growth of a stock-exchange-based secondary market for (re)insurance risks (EY, 2017a; SCOR, 2019; Deloitte, 2020; McKinsey & Company [McKinsey], 2020a).

These changes have a considerable impact on reinsurance companies and their activities – either threatening or promising – depending on respective view. Prevailing business models are being put to the test, and the challenge for management lies in modifying these to secure their competitive edge and, ultimately, the existence of their company in the long term.

Change requires adjustment. Since the reinsurance industry depends more heavily than most other sectors on their employees' ability and skills, human capital assumes particular importance in this context (EY, 2020, p. 36). Therefore, it is essential to bring skills and job profiles into line with evolving business models and future challenges. Reinsurance companies must use appropriate foresight – possibly via scenarios – to determine what skills will be required to ensure a successful business, identify skills gaps, and close them sustainably (McKinsey, 2020b, p. 5). To achieve this, management needs to consider the following questions:

- What are the emerging trends in the sector, the technology, and the processes? What parameters are instrumental in determining them?
- Given these trends, what scenarios are likely for the 2030 business model?



- What are the implications given the different scenarios for the reinsurance sector in general and for their own company in particular? How pronounced is the impact on the core functional areas of the company?



- What are the most important skills sets for these central areas – now and in 2030?
- Where and to what extent do skills gaps exist?



- What measures are available to bridge any recognized skills gaps?
- What measures should be implemented to retain, improve, or develop (from scratch) the skills required?



1.2. SUBJECT OF THE INVESTIGATION AND AIMS

This study examines how the skills requirements to be met by reinsurance specialists in the core functional areas of business development, client management, underwriting, operations, and claims can change based on possible scenarios and business models. This study aims to give managers in reinsurance companies:

- a conceptual framework which can be used to determine systematically what skills are required in the five core areas concerned and to identify skills gaps, and
- a selection of options for acting effectively to close those skills gaps.

1.3. METHODOLOGY

1.3.1. Structure

The approach pursued in this study is both top-down and sequential. Consequently, the three chapters in the main section build on one another. In line with the questions set out above, the structure for the main section is as follows (cf. Fig. 1):

- In Chapter 2, critical parameters are identified first from the company management perspective. From them, scenarios are developed which can be used as a realistic basis for future business models in the reinsurance sector.
- In Chapter 3, these scenarios are examined in terms of their effects on future activities and the associated skills requirements at the operative level of the reinsurance company. These relate to the selected core areas of business development, client management, underwriting, operations, and claims.
- Measures aimed at closing skills gaps in reinsurance companies are outlined in Chapter 4.
- Options for closing the identified skills gaps in the medium term are set out in Chapter 5.
- Chapter 6 concludes the study with recommendations for systematic, strategy-based closure of the skills gaps previously identified.

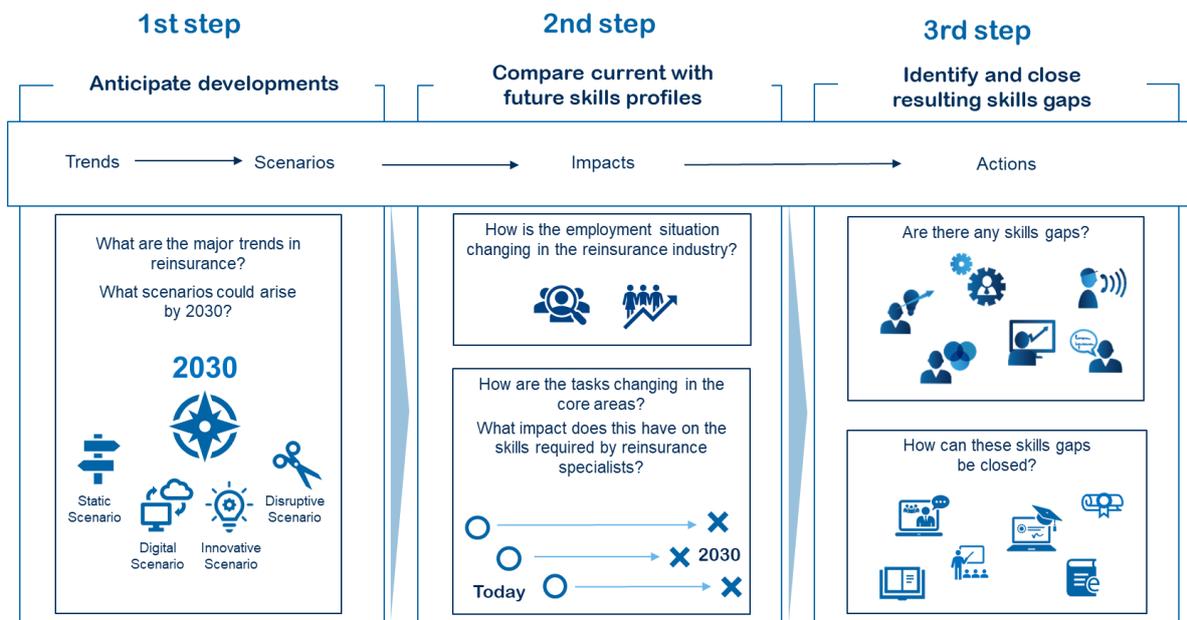


Figure 1: Structure of the study:

This study is based on the guiding principle that a company's skills profile in the medium to long term should not be determined and designed primarily by a human resources or individual functional areas (cf. Fig. 2). Instead, control must be embedded within a strategic context (McKinsey, 2020b, pp. 4–5). There is a risk that without anticipating possible future developments and without a clear idea of the strategies and business model required for the

company to position itself successfully in the market, the skills profile will not (or not sufficiently) adapt to changing external and internal conditions.

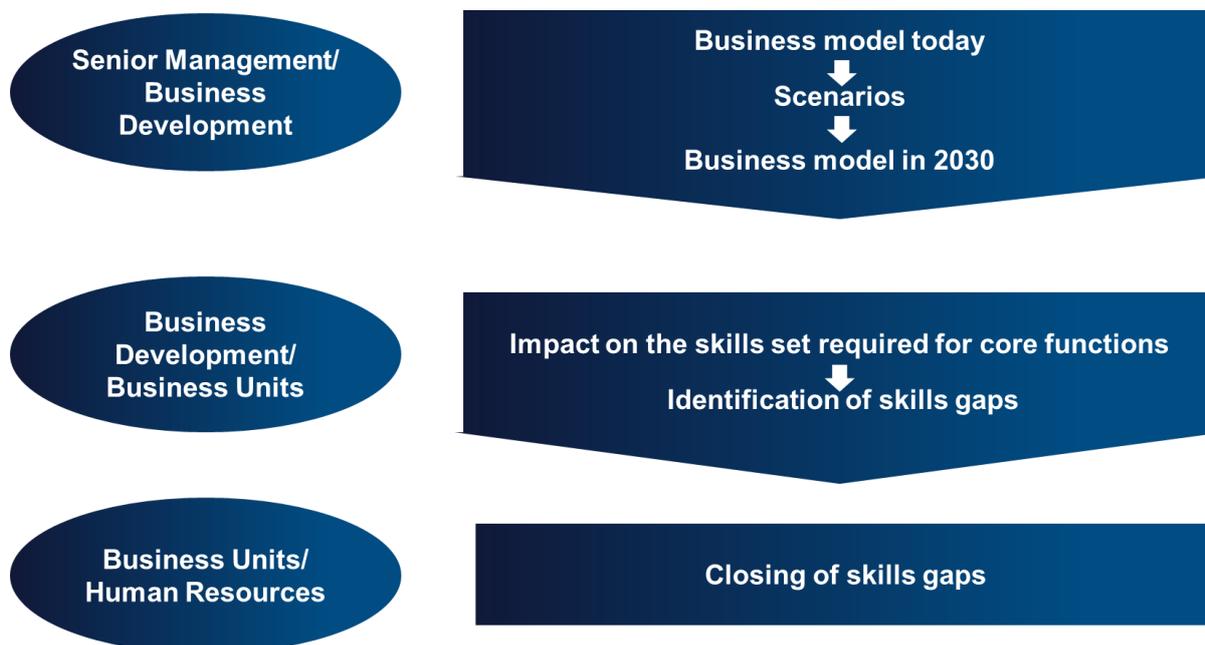


Figure 2: Identifying and closing skills gaps as a corporate activity

Skills management is of particular importance to reinsurance companies whose production – i.e., the provision of reinsurance protection and associated services – relies principally on the deployment of employees and their skills. This endeavor is challenging because both the areas of activity and the qualifications required are remarkably diverse. The range of occupations employed in the reinsurance sector is more extensive than in virtually any other industry: mathematicians, engineers, economists, lawyers, physicists, and medics often work closely together. It is not without reason that the reinsurance industry refers to itself as a knowledge sector (Swiss Re, 2019a; SCOR, 2020).

The rapidly changing environment presents a further challenge. As recently as the 1990s, reinsurers tended to be static constructs fostering long term relationships with clients. Additionally, longer-term balancing of risk and loss payments was essential in risk and portfolio management. In the meantime, the environment and internal reinsurance company structures have undergone considerable change. This development will likely gather pace with lasting consequences for the skills profile required. For reinsurers, this means that diverse areas of expertise in the company will need to adapt dynamically. It is vital to adopt a holistic perspective, develop scenarios on this basis, and ultimately select a business model that promises the company the best fit with future challenges.

The period under review in this study – up to 2030 – was a conscious choice since shorter periods of investigation risk a continuation of prevailing trends. Conversely, studies covering exceptionally long periods tend to be plagued by forecasting uncertainties. Because the (re)insurance sector is characterized by a certain degree of inertia when it comes to adapting to changing environmental conditions or implementing innovative products and processes, ten years is a generally acceptable timespan. This also applies to changes in skills profiles, which tend to be carried out only successively. Even when the need to modify the workforce skills set is recognized, there is always some planning and lead time before the required level is achieved. In this respect, a review period up to the year 2030 is also appropriate.

This study finishes with conclusions and recommendations. It is worth noting at this point that high levels of uncertainty are inherent to the outcomes of studies concerning the future (Müller & Müller-Stewens, 2009, p. 5). It is all the more important to understand that scenarios are not forecasts; rather, they are hypotheses about the future that should be as holistic as possible. Therefore, the resulting required skills profiles are rough assumptions about

situations arising both inside and outside the company and aligned with the circumstances specific to the company concerned. Recommendations can only be general and must be interpreted in the context of the given situation in terms of size, distribution area, range of goods, and services offered by the reinsurance company in question.

1.3.2. Approach

The methodology of this study is based on a combination of desk research and online surveys. The current field of research and practice was explored by questioning reinsurance managers individually. As was the case for other subject areas within the reinsurance industry, no systematic scientific or practice-based investigations relating to the subject of skills were found, although consulting companies were included in the search. The strategy of falling back on findings from the primary insurance industry – often an option in such cases – proved impossible due to a lack of scientifically sound studies. A number of articles published mainly by consultancy companies address skills in primary insurance companies or financial institutions. Reference is made to these articles at several points in this study, and parallels are drawn insofar as they are relevant to primary insurance reinsurance activities and processes. There is also a comprehensive study that relates to the banking sector ('Zukunftsstudie Bankspezialisten 2030'), published by the Zurich University of Applied Sciences (ZHAW, 2017), to which reference is made in methodological and conceptual terms.

Following on from the desk research results, eleven experts from the industry – employees of international reinsurance companies with headquarters, branches, or offices in Switzerland, Germany, and Austria – were questioned about the skills required in reinsurance companies of the future. Those surveyed were predominantly senior managers with a cross-departmental and corporate strategy perspective. Questioning was conducted in the period between 30 September and 16 October 2020, via an anonymized, standardized online survey. Although the results obtained cannot be regarded as representative or used as a basis for generalized statements, they undoubtedly provide indications as to a basic pattern and underlying tendencies. Since not all questions were answered, there are slight variations in the number of statements used to evaluate everyone's response. Some of the online survey results were supplemented by responses to questions put to reinsurance managers either by telephone or face-to-face. In Chapters 2–4, the analyzed answers and the actual questions are shown in context in the text fields highlighted in gray (cf. 'Opinions of the reinsurance managers surveyed').

We would like to take this opportunity to thank all those who took part in this study for their valuable contribution.

2. Recognizing Trends and Developing Scenarios

In principle, reinsurance company managers are well aware of the skills set currently required in the industry. However, it is less clear which skills employees will need in the future to rise adequately to the challenges facing the sector (cf. Chapter 4.1.). Measures to adapt the company's qualification profile to external and internal developments – such as further training for existing staff or hiring new employees – are often only geared towards current conditions. However, successful skills management depends on adopting a systematic, future-oriented approach. It is essential to anticipate important developments and assess their consequences for the business model and the tasks to be performed. This is a prerequisite for determining the skills needed by the organization in the future and for introducing measures to close the skills gap promptly.

What are the landmark developments that can result in reinsurers modifying or having to modify their business model? What are the main influencing factors underlying trends like this? What scenarios emerge depending on the strength of these influencing factors? These questions are addressed in the following chapters.

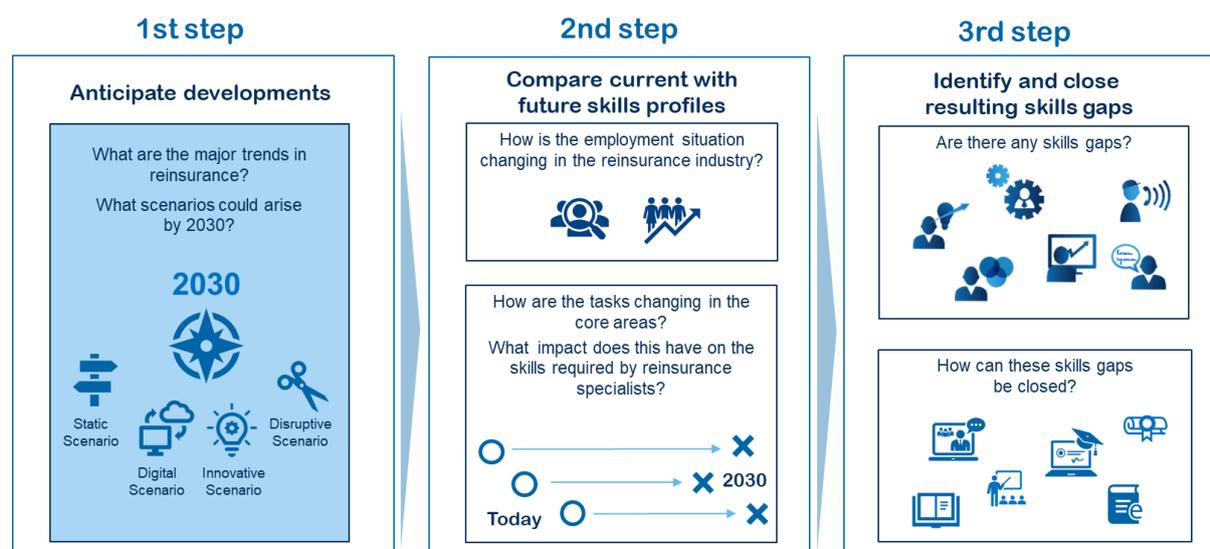


Figure 3: Step 1 'Anticipating developments'

2.1. IMPORTANT INFLUENCING FACTORS

Before meaningful, realistic scenarios can be developed, it is essential to determine what factors significantly influence the future success of a reinsurance company. Various important developments or trends are described in the literature³ and largely confirmed by the reinsurance managers surveyed (cf. 'Opinions of the reinsurance managers surveyed', p. 13). They are assigned to the following five key factors:

Client Behavior

This factor relates primarily to changes in client requirements and, accordingly, in client demand behavior. Reinsurance companies have only a very limited number of clients compared to primary insurers, and this figure can vary, depending on the company, from several dozen to thousands. At the same time, relationships between reinsurers and their clients have been characterized – at least up to now – by relative closeness, stability, mutual

³ Among others by SCOR (2019, pp. 8–10); Allianz Re (2019); Deloitte (2020)

loyalty, and expectations of high levels of service. Increasingly, they also expect support from reinsurers when insuring new types of risk, such as reputational or digital risk⁴. Requests for complex, sometimes holistic solutions for both risk transfer and risk management – often to strengthen their capital positions in terms of risk-related and regulatory considerations (Munich Re, 2017, pp. 13–14) – are becoming more frequent. It is also true that clients are seeking more and more to hedge against peak risks through non-proportional programs and are generally transferring smaller risk portfolios (Deloitte, 2020, p. 9). Overall, client focus is shifting away from high-volume standard products to tailored, case-specific solutions. For reinsurers, the challenge is to respond to these demand changes with an adequate range of products and services.

Given the upturn in digitalization in their own branch, primary insurers in their role as the clients of reinsurance companies – small to medium-sized enterprises, especially – are interested in comprehensive service and consultancy services in the areas of data and analysis functions, data management, product development, and risk prevention (CCR, without year, pp. 3–5). Several reinsurers are, therefore, providing support in developing digital offers and implementing data-assisted processes. However, it is important to add that the reinsurers in this sector are increasingly having to compete with large brokers, who are also driving the development of digitally-assisted services for primary insurers (Deloitte, 2020, pp. 23–25).

Macro-Economic Developments

There are several reasons for macro-economic developments, and these take many forms. They can be regional, e.g., a rise in the inflation rate or excessive national debt affecting one country or the whole world. The COVID-19 pandemic, which broke out in 2019, shows the extent of the claims burden resulting from a global downturn for exposed (re)insurance sectors. Within the closer context of the (re)insurance market, other examples of change affecting the economy as a whole can be listed as follows: the ongoing low interest rate leading to a surplus of reinsurance capacity, the resulting fierce competition in the industry, momentum in the deglobalization trend, and – under the heading of sustainability – efforts on the part of politicians, producers, and consumers to engage and invest in more sustainable economic activity.

Changes in the Risk Landscape

Climate change, the emergence of new types of risk – e.g., in connection with online activities (cyber risk) and intangible assets – socio-economic changes, geopolitical uncertainty, previously unforeseen structural accumulation of risk (arising from COVID-19), and the accelerated complexity of risk are undoubtedly among the most critical challenges facing reinsurance companies.⁵ These changes force them continually to adapt their underwriting policy and their risk and exposure management. Other external influences include increasing regulation at a national and supranational level and the associated increase in reputation and license-related risk. An international or global presence also exposes reinsurance companies to changes in geopolitical circumstances, which impact the risk environment either directly via statutory requirements or indirectly through trade restrictions, acts of war, and terrorism (EY, 2020, pp. 8–9). The recently highlighted protection gap in less developed economies (CCR, without year, pp. 8–13; The Geneva Association, 2018; Allianz Re, 2019) is a further example of how changing risk awareness in the reinsurance market can also open new business opportunities.

⁴ Digital risk refers in this study to unintentional and often unexpected events resulting from digital transformation and the application of associated technologies (RSA, 2020, p. 3).

⁵ In a 2019 survey by PwC of the risks to which the reinsurance industry is exposed, technological change was deemed to be the greatest risk, followed by cyber risks, climate change, change management, regulation, insufficient investment performance, and a lack of human talent (PwC, 2019, p. 7).

Digital Technologies

New technologies such as cloud storage, external data mining, blockchain, and machine learning will enable risks to be identified, analyzed, structured, and assessed more swiftly and with greater accuracy – or not to arise in the first place. Additionally, the increased use of digital technologies will change the interaction with clients and their clients. Digital transformation, which is strongly emerging in some primary insurance companies or is already well underway in others (Accenture, 2019; BCG Henderson Institute [BCG], 2020a), is proving to be a catalyst for the introduction of digital technologies in the reinsurance sector. This is because the close interrelationship between primary and reinsurers impacts directly on the demand for reinsurance services and the process relationships between the two stakeholders. In the case of reinsurance companies, digital technologies are drivers for increased efficiency of internal processes. This applies in virtually all areas of the company, particularly in business development, underwriting, and operations. Terms such as automated placement, augmented underwriting, distributed ledger technology, and big data management are examples of digital technologies and concepts of this nature.

Development of Alternative Market Structures

Alternative forms of risk transfer are increasingly replacing the traditional value chains with stakeholders: primary insurance clients – brokers – primary insurance companies – brokers – reinsurance companies. The emergence of highly innovative insurtechs and digital platforms as well as the generation of complex digital eco-systems, are noteworthy at this point (EY, 2020, p. 8). Additionally, the insurance-linked securities market and particularly the development of a stock-exchange-based secondary market (Deloitte, 2020, pp. 33–34), as well as innovative distribution platforms such as white label offers, are exerting pressure on existing structures and have far-reaching consequences for the (re)insurance market (Swiss Re, 2019b, p. 34). The continuous flow of alternative capital to the reinsurers is increasingly enabling them to share risks with institutional investors alongside their traditional role as risk-takers. Consequently, the focus on intermediation and trading is becoming stronger.

As part of this study, eleven managers of reinsurance companies were asked about the importance of these five influencing factors:

Opinions of the Reinsurance Managers Surveyed

“How would you assess the impact of the following challenges for the reinsurance industry in the next 10 years (i) in general and (ii) for your company in particular?”

(i) All of the five influencing factors considered were deemed to have medium to high impact. Medium impact was accorded to client behavior, macro-economic developments, and the development of alternative market structures, while changes in the risk environment and in digital technologies were regarded as high impact.

(ii) Their assessments in relation to their own companies was similar. Only two factors – changes in the risk environment and the development of alternative market structures – were viewed predominantly as moderate rather than high-impact.

The following influencing factors were among those highlighted by individual reinsurance managers: ultra-low interest rates and insufficient return on investments, higher frequency and accumulation of claims arising from natural disasters, the emergence of new risk distribution platforms, silent cyber risks, surplus capital in the reinsurance sector, acquisition of qualified talent, deglobalization, converting reinsurance and financial markets, and the adaptation of the workforce along the evolving processes in the value chain.

2.2. RESULTING CHALLENGES AND THE PRESSURE TO CHANGE

The influencing variables outlined in 2.1. above affect reinsurance companies with varying degrees of intensity. Here, company structures and the environment concerned are both contributory factors. These influences, therefore, present different challenges to each reinsurance company, and they can be condensed into the following broad tendencies:

- increasing demand for customer-specific solutions and consultancy services,
- fiercely competitive reinsurance markets,
- increased risk complexity and intensified risk aggregation,
- digital transformation in the (re)insurance sector, and
- re-organization of the value chains in reinsurance.

These challenges call for reaction on the part of the reinsurance companies, increasing pressure to make changes to avoid a negative impact on the operation and ultimately on its ability to survive in the future. The principal measures required are as follows:

- develop innovative, tailored solutions,
- improve operational efficiency and lower administration costs,
- optimize risk and portfolio management, and
- extend data infrastructure and R&D activities.

Measures like this can be implemented much more quickly when the benefits of digital technologies are harnessed and there is collaboration with digital-oriented partners such as insurtechs or stakeholders in digital eco-systems. The importance of moving towards greater digitalization is increasingly emphasized in the literature and even by reinsurance companies themselves (cf. Chapter 3.3.3.). Although there is a disagreement about what digitalization actually entails, it is universally regarded as a core influencing variable that reaches deep into the existing market and corporate structures. In this context, it must be noted that it is vital to bring the level of qualification of the workforce continuously into line with these dynamic developments and to adapt the corporate culture accordingly.

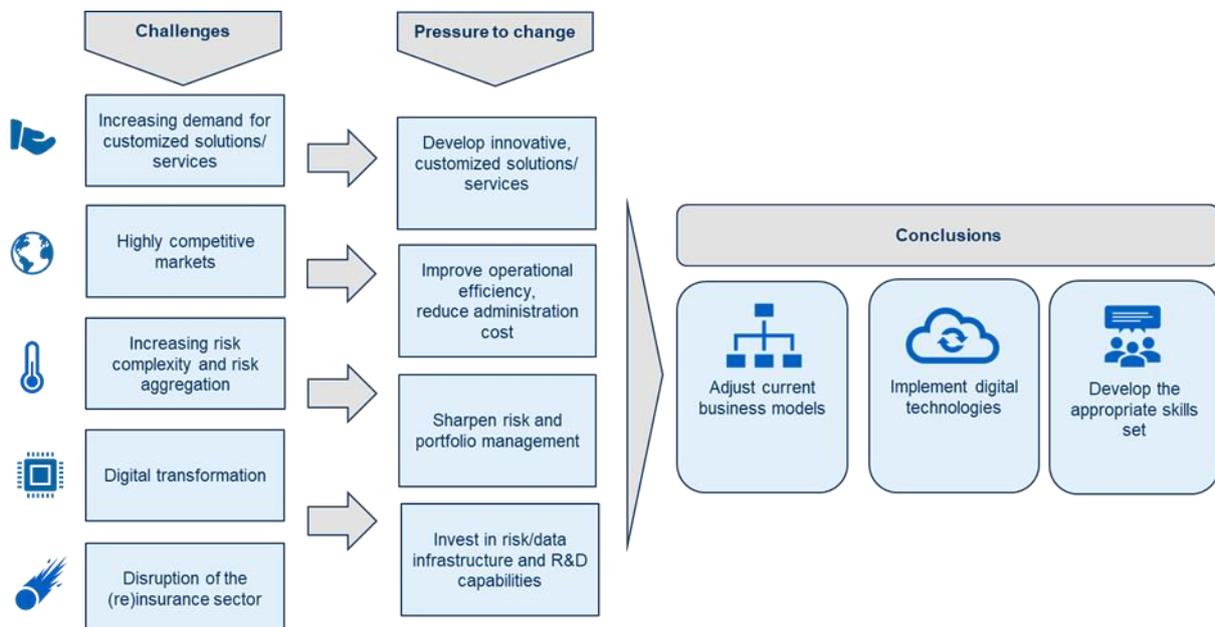


Figure 4: Challenges and the resulting pressure to change

2.3. POSSIBLE SCENARIOS AS A BASIS FOR FUTURE BUSINESS MODELS

The question now arises as to how the reinsurance industry is reacting to these challenges. How are the reinsurance companies preparing for these challenges? What tactical and strategic measures have they already implemented or do they intend to implement in the near future?

It must be acknowledged that there is no consensus on the business model most suited to the requirements of reinsurance companies when responding successfully to the challenges described. Depending on how much weight is given to the relevant influencing factors, a number of different assumptions can be made as to how the reinsurance sector will develop in the future and how individual companies should prepare. Consultancy companies and reinsurance company managers draw a range of conclusions and, accordingly, formulate different scenarios. Nevertheless, there are significant similarities as well as differences. Ultimately, four exemplary scenarios⁶ emerge:

Digital	As in primary insurance, an increasing number of experts in the reinsurance industry take the view that in the next few years, digital transformation will be one of the most important game-changers. Digitalization will be regarded as a catalyst for differentiated data analysis and for the automation of distribution and administrative processes to increase efficiency, lower costs, optimize risk modelling, improve underwriting, and strengthen portfolio management (Hannover Re, 2017, pp. 6–7; Munich Re, 2020a).
Innovative	Some experts regard innovation as the key element in future business models. Digital technologies tend to be viewed, in this scenario too, as catalysts driving forward the development and marketing of innovative, tailored solutions, and consultancy services whether through traditional sales channels or platforms within digital eco-systems (Swiss Re, 2018a, p. 9; Hannover Re, 2017, pp. 6–7; Reinsurance News, 2018; EY, 2020, p. 22).
Disruptive	A number of industry representatives have predicted considerable disruption to the value chains of insurance and reinsurance companies originating mainly in insurtechs, tech giants, and alternative capital providers (EY, 2016, p. 37; Calandro, Carr, Paharia, Ramette, & Yoder, 2018, p. 24; European Insurance and Occupational Pensions Authority [EIOPA], 2020, pp. 10–12).
Static	In contrast, some experts cannot rule out the possibility that the reinsurance branch will not change significantly in the near future, and continue to operate in a generally static environment with only selective use of digital technology providing largely unchanged products and services (Khanna, 2019; Deloitte, 2020, p. 36).

⁶ Cf. the four scenarios developed by Deloitte for non-life reinsurers: evolutionary change, capital-focused change, distribution-focused change and broad-based change (Deloitte, 2020, pp. 35–39).

Regarding the development of key factors for reinsurance (cf. Chapter 2.2.), these four scenarios can be described as follows:

Digital



- A high degree of automation of the business relationships between primary insurers, brokers, and reinsurers.
- Greater standardization of the product range coupled with individualization of the range of services.
- High investment in digital technologies, e.g., in new data sources and analysis methods, particularly those which accelerate automation.
- Intensive use of data analysis tools and models in underwriting, risk, and portfolio management.
- Less dependence on reinsurance cycles through a higher level of automation, and increased flexibility permitting reaction to changing circumstances.
- Intense pressure to make changes due to reorganized business models of customers and brokers, accelerated by insurtechs and the successful establishment of digital eco-systems.

Innovative



- A growing shift in direction among primary insurers, brokers, and reinsurers towards changing client requirements, with a strong focus on developing new business opportunities.
- Support for a customized range of problem-solving and service offers.
- Moderate deployment of digital technologies for automation but high application of new data techniques and analysis methods in the business development area.
- Moderate use of data analysis tools and models for underwriting, risk, and portfolio management; a stronger focus on emerging risks.
- Competitive advantages achieved via diversified products/services that are less reliant on reinsurance cycles.
- Moderate pressure to change due to limited changes to business models used by clients and brokers, accelerated by insurtechs and the successful establishment of digital eco-systems.

Disruptive



- The break-up of traditional business relationships between primary insurers, brokers, and reinsurers.
- Service as the dominant aspect of the product range.
- High levels of investment in digital technologies/digital platforms.
- A functional change from traditional risk-taking to risk sharing and consultancy.
- Low dependency on traditional (re)insurance markets.
- Intense pressure to change due to innovative business models adopted by clients and brokers via insurtechs, and the successful establishment of digital eco-systems in key sales markets.

Static



- The continuation of traditional relationships between primary insurers, brokers, and reinsurers.
- Few changes in the largely standardized range of products and services.
- Follower-behavior in the use of digital technologies; little investment in digital technologies.
- Conventional risk management, little appetite for emerging risks, limited use of data science for risk modeling or portfolio management.
- Tough competition with surplus capacities for conventional reinsurance products and heavy dependence on reinsurance cycles.
- Little pressure to change due to the unchanged business models of clients and brokers; little influence exerted by insurtechs or by digital eco-systems.

Possible characteristics of the influencing factors outlined in Chapter 2.1. in relation to the four scenarios are presented in the following diagram:

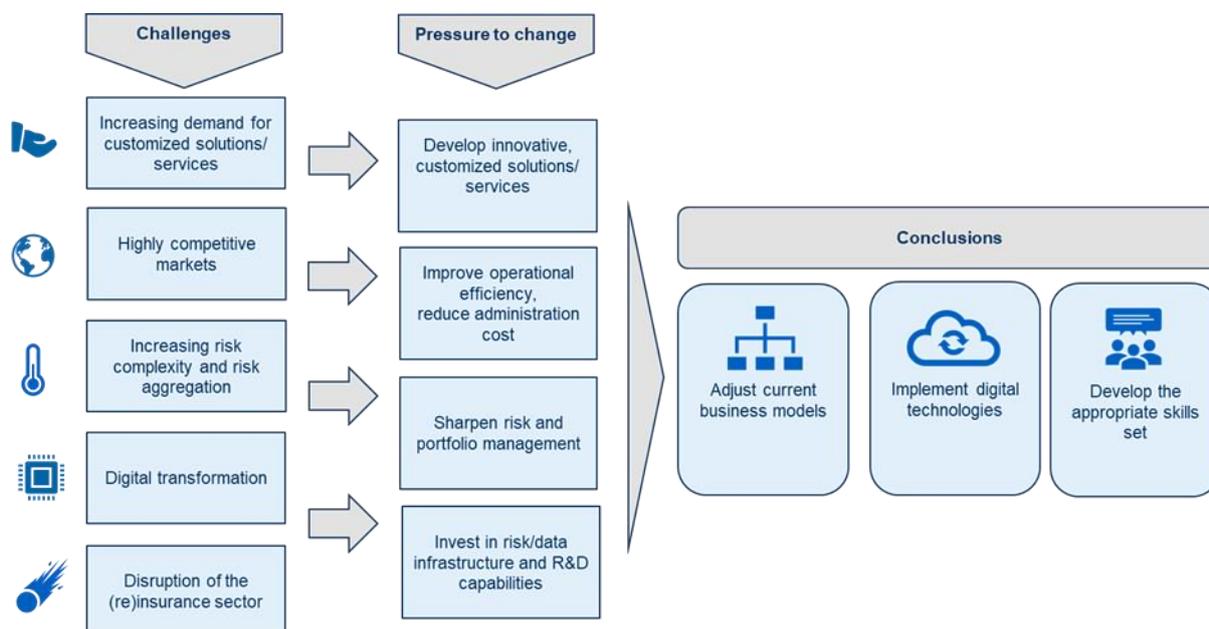


Figure 5: Representation of the four scenarios based on the characteristics of the key factors

The degree to which these characteristics are present should largely determine the future structures and processes in the company when a corresponding scenario or a combination of various scenarios is regarded as a realistic basis for a future business model. If, for example, the starting point is an innovative scenario, the focus should be on developing tailored products and, most importantly, services for the clients of primary insurers and industrial companies⁷. It would also make sense to participate in new forms of distribution to digital platforms for processing, transfer, and distribution of risk.⁸ If a digital scenario is favored, a higher level of automation, for example, in contract administration, should be phased in, and increased application of digital tools to collect and analyze data. These considerations are important not only for the company's future positioning but also for determining which skills will be necessary for the future and introducing corresponding measures to close skills gaps (McKinsey, 2020c, p. 9).

⁷ The 'FlexFactory', established as a joint venture by Munich Re with Porsche, the sports car manufacturer along with its management and IT consultancy subsidiary, MHP, is an example of this. The aim of the joint venture is to make the manufacture of small batches of various products in the manufacturing industry more flexible and more cost-efficient. Munich Re contributes financing and insurance models as well as a performance guarantee to this joint venture (Munich Re, 2020b).

⁸ This is how Swiss Re along with iptiQ developed an omni-channel solution which encompasses a sales platform for customers and agents, sales optimization tools, as well as customer service and agent portals (Iptiq, s. www.iptiq.com).

How realistic are the four scenarios in the opinion of the experts?

Opinions of the reinsurance managers surveyed

“Which of the four scenarios (static, digital, innovative, and disruptive) or which combination of these scenarios do you consider most likely?”

Static: This scenario is considered unlikely by most managers. A minority sees this scenario as more likely.

Digital: A significant majority thinks this scenario is likely or very likely.

Innovative: The statements about this scenario are largely in line with those above for ‘digital’. The probability of this scenario was considered to be slightly higher.

Disruptive: The vast majority of managers consider disruption of the (re)insurance market to be unrealistic. However, a minority considers the occurrence of this scenario to be (very) likely.

In some respects, a combination of scenarios is also considered very likely – especially, a combination of the innovative and digital scenarios.

3. Development of the Employment Situation and Skills Profiles

The second part of this study begins by analyzing the development of the employment situation in the reinsurance sector. This focuses on the change in staffing levels in critical functional areas, taking account of the four different scenarios (cf. Chapter 2). Subsequently, the degree to which the range of tasks changes for each scenario and its impact on the skills required will be investigated for the functional areas in which the core activities of reinsurance companies take place.

3.1. EMPLOYMENT SITUATION

In contrast to the primary insurance and banking sectors, no information regarding the development and current employment figures for the reinsurance industry is publicly available. In the case of predominantly global companies⁹, there are considerable differences in workforce sizes. While the two leading reinsurers, Swiss Re and Munich Re, each employ just over 10,000 employees, medium-sized companies employ between several hundred and a few thousand. Most small reinsurance companies have well under one hundred staff each.

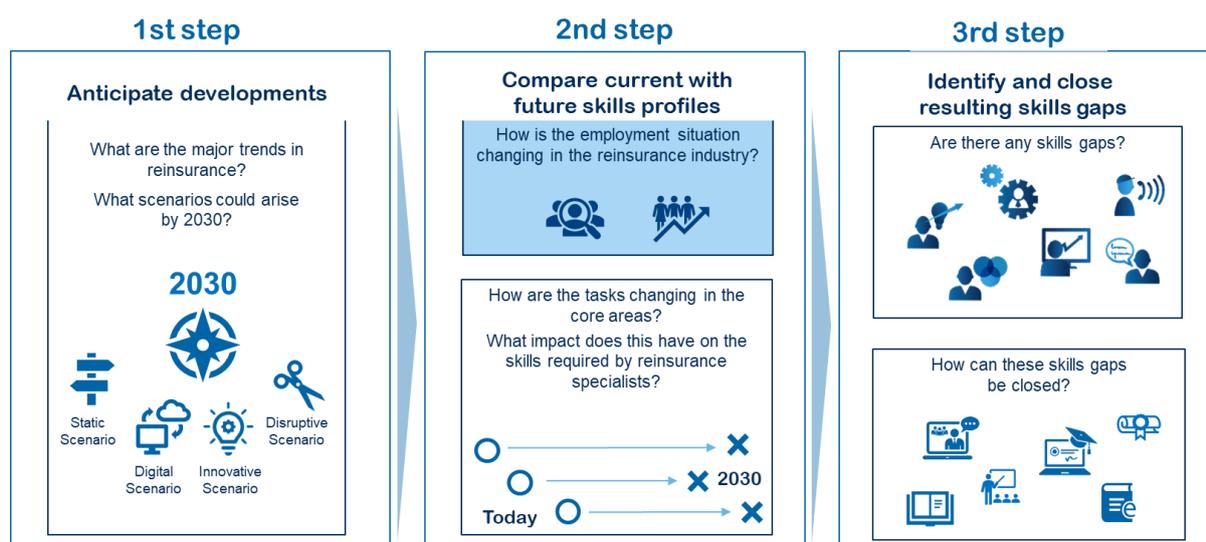


Figure 6: Step 2a 'Employment situation'

In this study, the numbers of people employed by the four leading reinsurers – Swiss Re, Munich Re, Hannover Re, and SCOR – in the years 2014-2019 were investigated using their annual reports (AM Best, 2020, p. 15). Figures revealed that the number of Swiss Re employees increased by 26%, Hannover Re by 22%, and SCOR by 25%. There were variations in the annual rate between 3% and 12%. Munich Re reported a relatively small growth of 5% in its reinsurance business segment during this period. This contrasts with a low percentage fall in the number of people employed by the primary insurance companies, at least in Swiss insurance companies. This decline is attributable to the fact that brokerage activities were outsourced while IT and administrative tasks were moved into external service centers (BAK Economics AG, 2019, p. 12).

A considerable proportion of IT, accounting, and other administrative activities in reinsurance companies were also transferred to service centers mainly in Asia and Central and Eastern Europe. Depending on the prevailing company policy, this involved either internal units or separate, external companies – a move which reflected the total number of employees. However, in reinsurance companies, there are also areas that have seen and continue to undergo

⁹ According to a 2013 publication by Swiss Re, approximately 200 reinsurance companies – most of them specialists – operated in the market (Swiss Re, 2013, p. 12).

what are sometimes sizeable increases in staffing levels. These are largely responsible for the steep overall rise in the number of people employed. The areas involved are, above all, those in which more complex, non-standardized, or new types of activity are required and in which – as in the primary insurance industry – digital transformation is associated with new or modified tasks (EY, 2020, p. 33). This applies in particular to the following areas:

- risk management (due to higher risk complexity, the emergence of new types of risk, and tighter regulation),
- underwriting (due to the shift towards provision of more complex, tailored products and services),
- governance/compliance (due to stricter regulation, the fear of reputational damage, and demands from investors and analysts for greater transparency), and
- business development/IT (due to the increased deployment of digital technologies to develop innovative products and services, such as analyzing markets and clients).

Overall, it is anticipated that there will be a further reduction in the number of staff employed in areas which deal with routine work. This applies above all to administrative tasks such as technical accounting, contract administration, renewal support, and reporting – most of which come under operations. Most of these predominantly repetitive tasks – performed manually for decades – are being replaced by digital techniques such as blockchain, artificial intelligence, and process automation, leading to increased process automation (Calandro et al., 2018). Underwriting and claims are likewise affected by ongoing digitalization. Here too, routine tasks such as the confirmation of contractual offers and reviewing of the wording in standard contracts are conducted with the assistance of digital technologies such as smart contracting. In claims, it is widely anticipated that blockchain technology will automate claims processing tasks, currently being done manually (PwC, 2018, p. 16). In comparison to primary insurance sectors, however, the decline in staffing levels for traditional reinsurance activities will be less steep as business processes here have always had lower levels of standardization.

In contrast, the remaining and newly appointed staff will have to cope with more complex work with higher value-added levels when dealing with complicated claims cases or in-depth analysis of underwriting data. The expansion of additional services, e.g., consultancy services in risk and loss prevention, portfolio-analyses, and preparation of large volumes of data, will require a higher number of employees. More stringent requirements in governance, compliance, and risk management will generate a need for additional, qualified staff. It is indisputable that the number of employees with vocational training in digital technologies, such as data scientists or data modeling specialists, will rise sharply (EY, 2020, p. 33).

It is not considered likely that the overall number of people employed in reinsurance companies will continue to rise to the same extent as it has done in the last five years. Indeed, sustained and intense cost pressures, coupled with uncertainty about the future, are more likely to result in a reduction. However, it can be safely assumed that the level of professional qualifications demanded by the sector will continue to rise until 2030. For example, employees will need to have enhanced skills in data analytics and digital technologies, comprehensive knowledge of the primary insurance and reinsurance markets along with associated digital eco-systems, and the ability to deal with complexity and develop tailor-made products and services.

Depending on the scenario chosen, it can be assumed that there will be changes in the number of employees in various functional areas or areas of responsibility up to 2030, as outlined in the following:

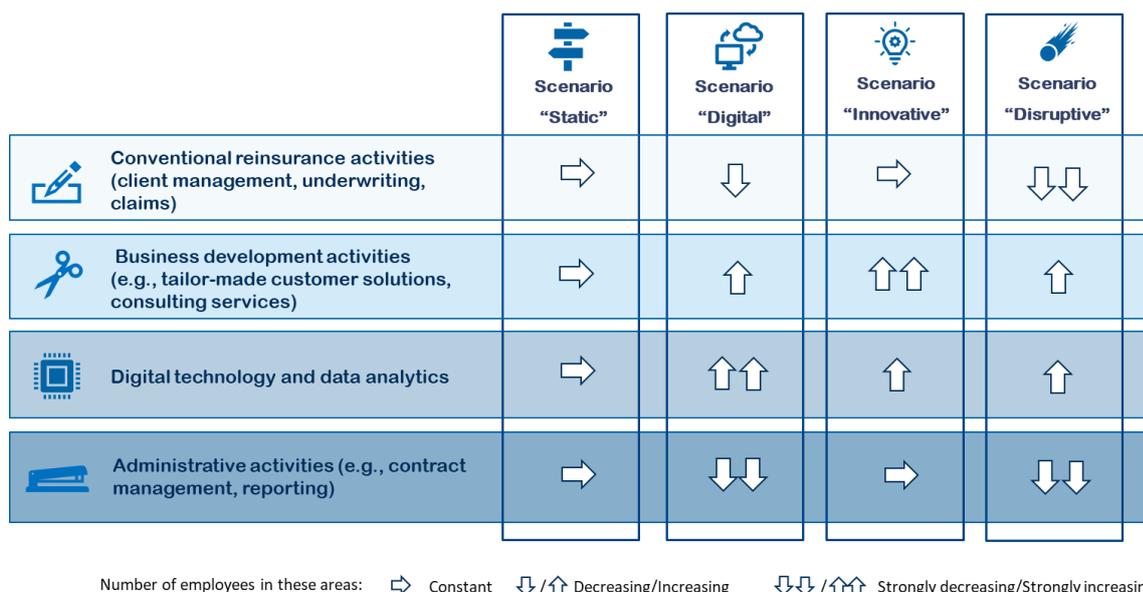


Figure 7: Scenario-dependent employment trends in central areas of activities

3.2. CURRENT ACTIVITIES AND SKILLS REQUIRED IN CORE FUNCTIONS

The next step is to examine how critical functional areas in the reinsurance industry will change in terms of the range of tasks they are required to undertake, depending on the scenario selected.

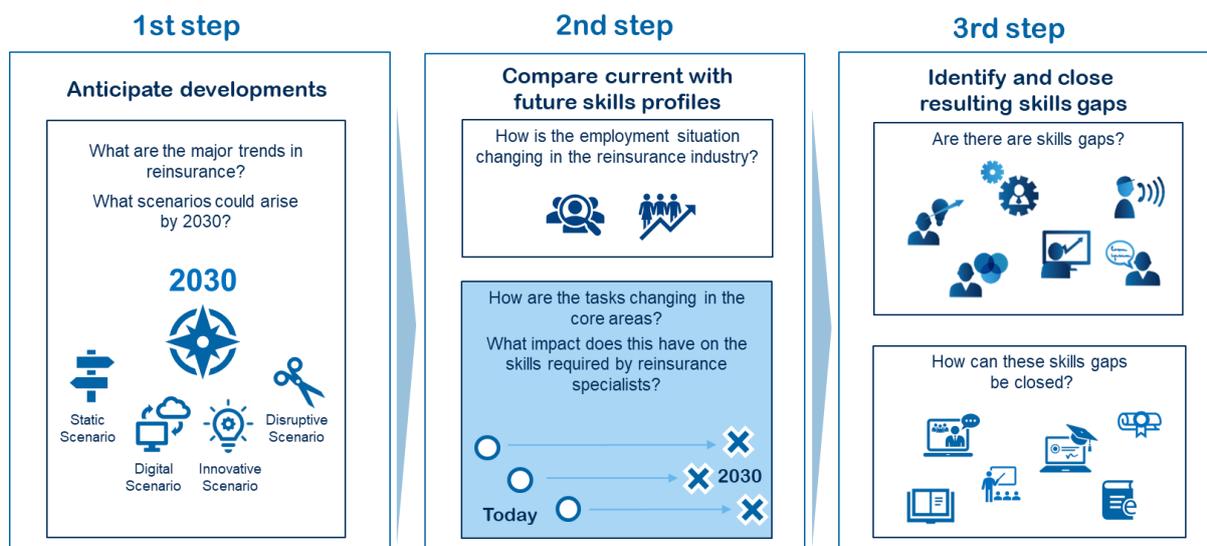


Figure 8: Step 2b 'Impact of changing tasks in central functional areas on the skills required'

3.2.1. Central functional areas of reinsurance and their tasks

What are the central functional areas – the core areas – in reinsurance companies? An overview of the key groups of functions in reinsurance companies that combine the same or very similar requirement profiles in respect of their employees and are also referred to as job families¹⁰ is given in Figure 9. This classification is suitable for identifying key competencies and, accordingly, education and training requirements. In practice, these function-specific groups of activities often form a basis for the organization of different areas of the company, such as divisions or departments. A range of different concepts of how to organize groups of common activities are applied in practice. For example, client management and underwriting might be combined to form one area, particularly in smaller

¹⁰ Examples of job families in the insurance industry appear, for example, in Aon Hewitt (2015, p. 4). Munich Re uses a similar form of grouping functions (areas of expertise) (2020c).

companies, and both functions are performed by one person. In larger companies, they are often separated. Sometimes, the claims area is wholly or partially assigned to operations.

<ul style="list-style-type: none"> • Actuarial Methods & Tools • Asset Management • Business Development • Claims • Client Management • Communications • Data Science • Finance 	<ul style="list-style-type: none"> • Operations Management • Human Resources • Information Technology • Legal & Compliance • Risk Management • Strategy & Research • Technical Accounting • Underwriting
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Figure 9: Function-specific groups of activities (job families) in a reinsurance company

In addition to traditional areas such as underwriting, claims, asset management, and IT, areas such as risk management, business development, and legal and compliance have gained in importance in the past 20 years. Data management and data science have assumed ever more significant roles in the past few years. However, these specialist areas are often not concentrated in one separate organizational unit but are assigned to various company areas, such as business development and IT.

It is also worth noting that depending on how the company's management sets its operative priorities and strategic aims, individual functional areas may acquire greater or lesser significance. Overall, however, there is a consensus that client management, underwriting, and claims are among the core functional areas. In addition to these, business development (formerly often known as product development) is also included in this study. Due to the forward-looking nature of this activity area, it has assumed a position of central importance in providing indications relating to the skills of the future. The fifth job family of relevance to this study, operations¹¹, covers important middle and back office tasks, for instance, contract administration and bookkeeping. As such, it performs primarily administrative and support functions.¹²



Figure 10: The core functions under review in the value chain of the reinsurance company

The five functional areas considered can be described in greater detail by their primary tasks as outlined below:

Business Development	Client Management	Underwriting	Operations	Claims
<ul style="list-style-type: none"> • Identifying new market needs. • Creating new business opportunities (products / solutions). • Advising clients as to their strategic needs (capital, growth, performance, etc.). • Providing client and market intelligence 	<ul style="list-style-type: none"> • Originating, negotiating, and concluding business. • Developing and steering individual client strategies. • Developing and commercializing complex products, services, and solutions. • Analyzing markets and customers 	<ul style="list-style-type: none"> • Analyzing and assessing risk. • Developing and applying risk models, methods, and tools. • Calculating premiums (costing, pricing). • Preparing and checking contract wording. • Maintaining (technically) customer relationships 	<ul style="list-style-type: none"> • Preparing and processing business information. • Managing contracts. • Supporting contract renewals. • Documenting business data. • Assisting in reporting. • Performing technical accounting 	<ul style="list-style-type: none"> • Assessing scope and complexity of claims. • Processing usually complex claims. • Investigating causes of claims and estimating losses and reserves. • Providing claims-related services

Figure 11: Important tasks in the core areas of the reinsurance company

¹¹ The terms business management and business services are also used for this functional area.
¹² A similar classification of core functions used for insurance companies also appears in BCG (2020a, p. 1), EIOPA (2020, p. 10), and McKinsey (2020a, p. 5).

The functional areas change over time both in terms of their importance to the reinsurance company and content. Consequently, the function-specific task profiles also change, as do requirements regarding employee competency in these areas.

How strong will the transformation into the five central functional areas be, and what skills profile modifications will be necessary by 2030? To answer these questions, it makes sense to investigate what competencies are currently relevant to the five core areas – and to what extent. The current state of the skills profiles will next be compared to the competencies required in the future (target state) to allow for subsequent identification of possible skills gaps.

The competency grid used in the ‘Future Study Banking Specialists 2030’ conducted by ZHAW (Zurich University of Applied Sciences [ZHAW], 2017, p. 50) serves as the starting point for the systematic compilation of skills required in a reinsurance company. These skills are divided into four categories: professional, methodological, social, and self-competency.

<p>Professional Competency</p> <ul style="list-style-type: none"> • Expertise in (re)insurance products • Expertise in (re)insurance markets • Expertise in digital technologies 	<p>Social Competency</p> <ul style="list-style-type: none"> • Adaptability, agility, ability to deal with diversity • Ability to form relationships (real, virtual) • Ability to deal with conflict/work in a team
<p>Methodological Competency</p> <ul style="list-style-type: none"> • Critical thinking, problem solving approach • Analytical and decision-making skills • Project planning/management skills • Communication skills 	<p>Self-Competency</p> <ul style="list-style-type: none"> • Self-awareness and self-confidence • Ability to work independently • Ability to learn and to change

Figure 12: Competency grid with key skills by competence competency group

Within the category of professional competency, this study focuses on critical areas of competency in relation to the products supplied by primary and reinsurance companies. On the one hand, this includes knowledge of reinsured lines of business and their inherent risks, as well as knowledge of the forms and contract types of reinsurance (including pricing, cover range, and clauses) and the services most in demand. On the other hand, this competency category considers the knowledge of the primary and reinsurance markets and the clients of primary and reinsurance companies, which is also core knowledge. An additional area of specialist expertise is digital technologies (cf. Chapter 3.3.3.), which acknowledges the increasing influence exerted on reinsurance companies by digitalization.

The skills assigned to methodological, social, and self-competency are based essentially on the ones selected in ‘Future study banking specialists 2030’ (ZHAW, 2017, p. 50). Since banks, like reinsurance companies, qualify as financial institutions – and there are similarities between them in terms of the purpose and nature of their business – it seems justifiable to transfer the individual characteristics of these categories to the conditions in the reinsurance industry.

Which of these skills within the four competency categories are currently relevant to the five core areas? The reinsurance managers were also asked for their opinions as part of the online survey. The results are summarized in Table 1 below:

Categories of Competencies	Skills	Key Functions				
		Business Developmt.	Client Mgmt.	Under-writing	Operations	Claims
Professional Competencies	Insurance product/risk expertise	●●●	●●●	●●●	●	●
	Reinsurance product/risk expertise	●●●	●●●	●●●	●●	●●●
	Insurance market/client expertise	●●●	●●●	●●●	●●	●●
	Reinsurance market/client expertise	●●●	●●●	●●●	●	●●●
	Digital technology expertise	●●	●	●●●	●●●	●●●
Methodological Competencies	In particular: critical thinking; problem solving approach; analytical and decision-making skills; project planning/management skills; communication skills.	●●●	●●●	●●●	●●●	●●
Social Competencies	In particular: adaptability; agility; ability to deal with diversity; ability to form relationships (real, virtual); ability to deal with conflict/work in a team.	●●●	●●●	●●●	●●	●●●
Self-Competencies	In particular: Self-awareness and self-confidence; ability to work independently; ability to learn and to change.	●●●	●●●	●●●	●	●●●

Table 1: Current competency requirements

The assessments of the reinsurance managers indicate precise current skills requirements for the core functions under review. These are summarized as follows:

Opinions of the reinsurance managers surveyed

“What skills are important in your company today for the following functions?”

In terms of professional competencies, employees working in the area of business development, client management, and underwriting should have a very thorough knowledge of (re)insurance products and (re)insurance markets. However, this knowledge is regarded as less important for the areas of operations and claims. Respondents classified the areas of expertise currently required in digital technologies as follows: very important for underwriting, operations, and claims; important for business development; and less important for client management.

Methodological, social, and self-competencies were highlighted as essential skills for business development, client management, and underwriting. As regards operations, methodological competencies were deemed to be very important, social competencies important, and personal competencies less important. Excellent social and self-competencies were regarded by those surveyed as essential for employees working in claims whilst methodological competencies were viewed as less important.

3.3. FUTURE TASKS AND SKILLS NEEDED IN CORE FUNCTIONS

3.3.1. What skills will be needed in the future?

Each reinsurer must address this question individually since what makes a skills profile fit for the future is company-specific. It depends on the assessment of the future external and internal development as well as on the likelihood that the scenario selected will become a reality. In this study, possible future competency profiles for the five selected functional areas are considered in greater detail.

This involved asking the reinsurance experts from industrial practice not only about skills currently needed as part of the online survey but also about the skills which will become necessary in the future. The importance they attached to various skills for the year 2030 is summarized in Table 2.

Categories of Competencies	Skills	Key Functions				
		Business Developmt.	Client Mgmt.	Under-writing	Operations	Claims
Professional Competencies	Insurance product/risk expertise	•••	••	•••	•	••
	Reinsurance product/risk expertise	•••	•••	•••	••	•••
	Insurance market/client expertise	•••	•••	•••	•	••
	Reinsurance market/client expertise	•••	•••	•••	••	•••
	Digital technology expertise	•••	•••	•••	•••	•••
Methodological Competencies	In particular: critical thinking; problem solving approach; analytical and decision-making skills; project planning/management skills; communication skills	•••	•••	•••	••	•••
Social Competencies	In particular: adaptability; agility; ability to deal with diversity; ability to form relationships (real, virtual); ability to deal with conflict/work in a team	•••	•••	•••	••	••
Self-Competencies	In particular: self-awareness and self-confidence; ability to work independently; ability to learn and to change	•••	•••	•••	•••	•••

Table 2: Future competency requirements

There are only slight differences in the assessments made by reinsurance managers when questioned about the required skills in the five key functions under review now and for 2030:

Opinions of the reinsurance manager surveyed

“What skills will be important by 2030 in the following core functions?”

In terms of professional competencies, very detailed knowledge of (re)insurance products and (re)insurance markets will continue to be required of employees in business development, client management, and underwriting. For employees in the area of operations and claims, little to moderate professional knowledge will still be sufficient. The importance of expertise in digital technologies, however, is undergoing reassessment. The respondents considered excellent knowledge to be essential in all five areas for the future, though only for underwriting, operations and, claims for the time being.

There were no significant differences relating to methodological, social, and self-competency. All three categories were regarded as important for the future. This also included self-competency in operations, which was viewed less important in the current skills set.

3.3.2. Future-proof skills profiles for the five selected core areas

In this chapter, we consider which skills within the five selected functional areas of business development, client management, underwriting, operations, and claims are essential or decisive for the success of a reinsurance company in 2030. As stated previously, everything depends on the corporate-specific situation. Therefore, the following description of the skills required in the future must be regarded as a preliminary, rough guide and adapted for each company. Depending on the assessment of external developments, e.g., the speed of digital transformation and differences in the company priorities, different, company-specific skills profiles will result.

Business Development

It is vital for employees in business development to have extensive knowledge of products and services provided by primary and reinsurance companies. They will require the ability to collaborate with underwriters, data experts, clients, and insurtechs to develop and market tailored, technology-based solutions. An in-depth understanding of product and market developments coupled with the inherent innovation potential along the entire value chain for primary and reinsurance companies are likewise essential. It will also be important to recognize and analyze digital and innovation trends – including those outside the insurance sector (Hannover Re, 2017, p. 7). Furthermore, employees in this sector must have the ability to analyze substantial volumes of data, recognize patterns, and interpret them in terms of business opportunities and risks. For example, they need to be familiar with the application of complex, digital analysis instruments for conducting scenario analyses (BCG, 2020b, p. 15).

As far as methodological competency is concerned, it is essential for employees to be creative, show a holistic and networked thinking, to be open to new ideas and have a flair for trends and innovative solutions. They must also have strong analytical and decision-making skills. The ability to work alongside others or manage interdisciplinary projects and other forms of cooperation such as incubators and tech labs is likewise very important (Hannover Re, 2017, p. 8; Freimarck, 2019; EY, 2020, p. 18).

Within the framework of social and self-competency, characteristics such as agility, a drive to change things, unconventional thinking, curiosity, a spirit of innovation, the ability to engage in networking and above all, high motivation to learn are all prerequisites.

Client Management

Employees in functional area client management must have an in-depth understanding of client needs and a thorough knowledge of the products and services provided by primary and reinsurance companies. Furthermore, it is essential to ensure that this knowledge is always up to date. It is also vital that client managers possess the competency to advise clients not only on established products and services offered but also on farther-reaching subjects such as regulation, alternative capital, digitalization and eco-systems. Like their colleagues in business development, they will have to collaborate with underwriters, data scientists, and clients to develop tailored, complex product, service, and risk management solutions and market them professionally. They should furthermore be capable of applying more complex, digital instruments for market or client analysis. (EY, 2020, p. 22).

As regards methodological competency, strong analytical skills are required to recognize and analyze client requirements. Creativity, holistic, joined-up thinking, and openness to new ideas are just as necessary as excellent communications skills.

As far as social and self-competencies are concerned, client managers need to be self-assured and empathetic, possess strong interpersonal skills, have a professional attitude to agility and diversity, as well as the enthusiasm to learn and adapt swiftly and flexibly to evolving circumstances.

Underwriting

In terms of functional competency, employees in underwriting must have a very high level of expertise in product and services for the primary and reinsurance market. The basic requirements also include the ability to analyze and interpret data as part of the risk assessment, selection, and modeling process (EY, 2020, p. 18). Underwriters will require the ability to use digital tools such as predictive underwriting to analyze complex risks, client accounts, and comprehensive portfolios and to develop adequate risk management solutions. They must be familiar with digital techniques, in particular when managing portfolios on various aggregation levels relating, for example, to exposures, risk limits, and profitability. They are also required to collaborate with clients and insurtechs to develop customized solutions (SCOR, 2019, p. 44; Hannover Re, 2018, p. 6). Alongside knowledge about the application of

adequate risk steering techniques and instruments, consultancy skills as part of risk management and risk prevention are increasing in importance.

Regarding methodological competency, it is essential for employees in underwriting to possess proven skills in the use of digital technologies to analyze, interpret, and process complex information and data. Compared with now, much greater emphasis will be placed on problem-solving skills, creativity, holistic as well as integrated thinking, openness to new concepts – and a business instinct for the development of new risks and services will be required. The ability to interact intensively with other business units and with external partners, including clients and insurtechs, and to participate in interdisciplinary projects and assume cross-functional responsibilities will also become increasingly necessary for underwriters.

As part of social and self-competency, underwriters are expected to adapt seamlessly to a rapidly developing business environment and adjust quickly to new circumstances facilitated by continuous learning. Decisions should be made on the basis of good judgement, the acceptance of personal responsibility is essential, change should be driven forward, various viewpoint should be identified and adopted, networks should be formed and the achievement of consensus should be ensured.

Operations

Employees in the functional area operations must have sufficient knowledge of the standard products and services in reinsurance companies. Since many of the more straightforward routine tasks are being automated, activities in this area are focusing increasingly on complex tasks (McKinsey, 2020d, p. 4). Consequently, staff need to have sufficient knowledge of digital technologies, particularly blockchain, big data processing, and data visualization (Swiss Re, 2017, pp. 2–3). They are also expected to have in-depth knowledge of analysis, interpretation, and processing of complex information and data. Additionally, they should be capable of applying digital instruments as part of data and workflow processing to make processes and workflows more efficient.

Regarding methodological competency, employees in operations require a high level of analytical thinking and the ability to scrutinize and develop efficient processes pragmatically. In addition to this, the competency to participate in interdisciplinary projects and working groups is increasingly important.

Within the framework of social and self-competency, employees should demonstrate the ability and willingness to adjust agilely to changing conditions, drive changes forwards, build up cross-departmental relationships, and work in virtual teams. It is also crucial that employees are keen to learn.

Claims

For employees working in the functional area claims it is likewise essential to have sufficient knowledge of current products and services provided by primary and reinsurance companies. As with operations, simple tasks are increasingly being automated (GR Global (Re)insurance [GR], 2019, p. 5). The resulting stronger focus on complex claims requires a correspondingly higher level of expertise. In addition to straightforward claims processing, the focus in future will be more on risk avoidance techniques and loss prevention, which requires additional qualifications (McKinsey, 2020d, pp. 4–5). Ultimately, like employees in other functional areas, claims specialists will need to have greater skill in dealing with digital technologies (PwC, 2018, p. 16; EY, 2020, p. 18).

Regarding methodological competency, analytical thinking is required, as is attention to detail and a solution-oriented approach to work. Since the claims area is collaborating increasingly with underwriting and with customers, good communication skills and a readiness to cooperate with others are increasingly relevant.

In terms of social and self-competency, the ability to adapt flexibly to an increasingly digitalized working environment is assuming greater importance. Claims specialists must continue to drive change, form networks, and participate actively in cross-functional teams. As in other areas, a willingness for continuous learning is vital.

3.3.3. Digital transformation as a cross-functional phenomenon

Like primary insurance, reinsurance is a flagship data-driven industry (Swiss Re, 2018b; SCOR, 2019) and eminently suitable for deploying digital technologies. Therefore, it is no surprise that digital transformation is currently one – if not *the* – dominant topic in the (re)insurance industry. In addition to this, the COVID-19 outbreak has accelerated moves to implement digital technologies. Hence, the digital transformation is likely to change the organizational structure and processes in primary and reinsurance companies at a much faster rate.

Detailed analysis of the skills likely to be required in the future reveals that digital transformation will impact the heart of the areas of activity and work processes in all five functional areas of the reinsurance industry. It will be a decisive factor in determining the content and interaction of skills in the next ten years. However, it can be assumed that the consequences will be less incisive than forecast for primary insurance companies (Cognizant 2017, Swiss Re, 2020a).

It is important to note that the level of qualifications in reinsurance companies is excellent. Highly specialized knowledge and experience will continue to be important vital elements of the skills profile in core functional areas. As a result of the elevated level of specialist requirements and the low level of standardization compared to primary insurance companies, tasks such as underwriting will not be replaced by fully automated processes and artificial intelligence in the foreseeable future (GR, 2019, p. 2). Overall, digital technologies are less likely to lead to revolutionary changes in the value chain than forecast for distribution in the primary insurance sector, for example (McKinsey, 2018a, pp. 4–5; Swiss Re, 2020a). Instead, it is the case that these technologies will have a complementary effect, i.e., they are more likely to support than replace employees in the core areas of business development, client management, underwriting, and claims. This can happen in two different ways:

- On one hand, digital technologies can be deployed to achieve added value for the client, particularly in relation to the development and marketing of customized products and services (Munich Re, 2020a; Swiss Re, 2020b). This will allow reinsurers to use new digital analysis methods, such as drawing up more meaningful models for projecting claims development, helping clients model more precise price calculations.
- On the other hand, digital technologies permit cost savings and increase efficiency (Hannover Re, 2017, p. 5). Examples of this include partially automated underwriting that can be used in more standardized product areas or electronic placement systems for reinsurance contracts (SCOR, 2019, p. 18; Deloitte, 2020, pp. 29–30). Such technologies enable the underwriter to invest more time and resources in developing complex, value-added solutions (BCG, 2020b, p. 12). The areas Operations and Claims in particular, with their heavily standardized work processes, are likely to apply digital technologies such as blockchain and artificial intelligence to replace mainly routine tasks. This is aimed primarily at making processes faster, more flexible, and better quality, resulting ultimately in lower costs and greater efficiency (BCG, 2020c, p. 5; Munich Re, 2020a).

The influence exerted by digital technologies on the reinsurance industry is summarized in Figure 13 below:

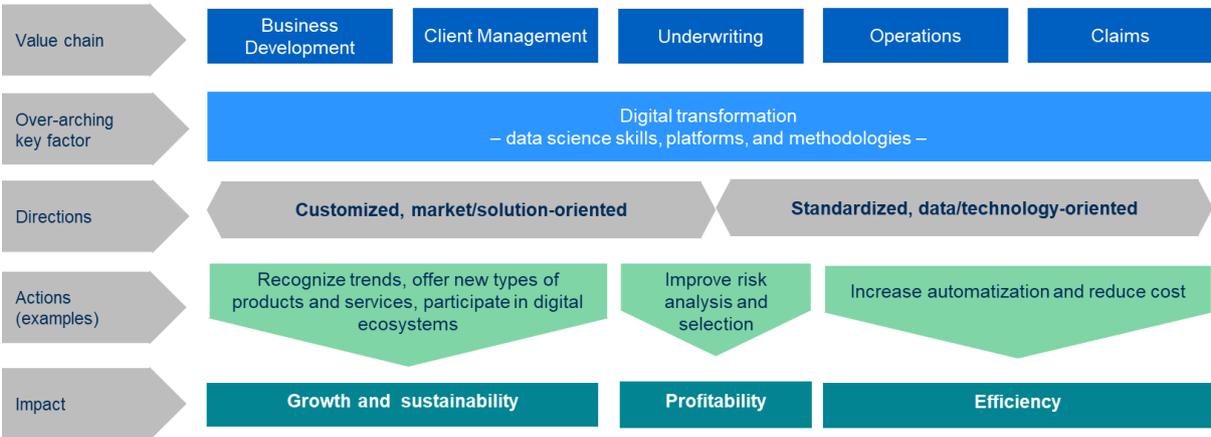


Figure 13: Impact of digital technologies on the value chain

3.3.4. Summary of changes in tasks and skills

Activities in reinsurance companies will have become more specific and more complex by 2030. Due to the comparatively low level of standardization in reinsurance companies, automation and the associated increases in efficiency will occur – though to a lesser degree – in primary insurance. Those most affected will be the functional areas of operations as well as, to a lesser extent, underwriting and claims. Digital technology will be used in reinsurance companies primarily to develop tailored, sophisticated client solutions and market them in conjunction with first-class consultancy services. Employees in the central functional areas will work on a much larger scale and daily with digital tools and methods, which will accordingly make increased demands on their analytical and digital skills.

Additionally, digital transformation will result in closer links among employees and therefore in closer employee collaboration between core areas that have until now operated relatively autonomously. This applies particularly to cooperation among the five core functions investigated here but also between core functional areas and data experts (GR, 2019, p. 2). Collaboration with external partners will likewise become closer within the context of digital eco-systems, particularly with clients who actively drive digital transformation, namely insurtechs and technology companies. Alongside the previously outlined analytical and digital skills, these developments will call for well-developed social and self-competencies on the part of future employees. Above all, they will need to be highly motivated, keen to learn, and capable of adapting swiftly to change and evolving cross-sectoral relationships.

The reinsurance managers surveyed were asked about the digital skills needed in the five core functional areas by 2030. Their assessments as to how they rank the importance of various levels of digital expertise (basic, advanced, and professional) for the five core areas are presented in Table 3:

Data Analytic/Scientific Skills	Key Functions				
	Scale: ● = no/less important, ●● = important, ●●● = very important				
	Business Developmt.	Client Mgmt.	Under-writing	Operations	Claims
Basic • Skills required to make basic use of digital devices and online applications: e.g., digital text processing, digital literacy, cloud computing.	●●●	●●●	●●●	●●●	●●●
Advanced • Skills in complex data processing and interpretation, online-marketing, data-driven decision making, text analytics, big data methods, dashboarding, data visualization.	●●●	●●	●●●	●●●	●●
Professional • Skills in data science, data architecture, and design thinking, e.g., predictive modelling, machine learning, artificial intelligence, blockchain, geospatial data analytics, computer vision, and image processing.	●●	●	●●●	●●	●●

Table 3: Digital skills in 2030

It is apparent that experts from industrial practice assess the requirements for digital skills differently according to their area of application:

Opinions of the Reinsurance Experts Surveyed

“What digital skills will mainly be required in the following core functions by 2030?”

There was general agreement among the reinsurance experts that basic skills in digital technologies were essential for employees in all five core areas. They also agreed that for employees in business development, underwriting, and operations, advanced digital skills are very important, though less important for client management and claims. Professional digital skills were considered essential only in underwriting. For other areas of the company, superior digital skills were either regarded as not essential, or only to a limited degree.

4. Recognizing and Closing Resulting Skills Gaps

The previous chapter has shown the dynamic and scope of changes that may be expected to affect competency profiles in the reinsurance industry. It can be assumed that the management teams of most reinsurance companies are aware of the ongoing changes and recognize the need to close these skills gaps; this impression was overwhelmingly confirmed by the reinsurance managers surveyed (cf. p. 31). However, insight alone is not enough, and it is vital to set an agenda for adapting skills and making decisions. This, of course, assumes precise knowledge of both current skills requirements and profiles – and a realistic idea of the skills needed in the future. The third part of this study examines how skills gaps can be recognized and what measures reinsurance companies can take to close existing and potential skills gaps.

4.1. RECOGNIZING SKILLS GAPS

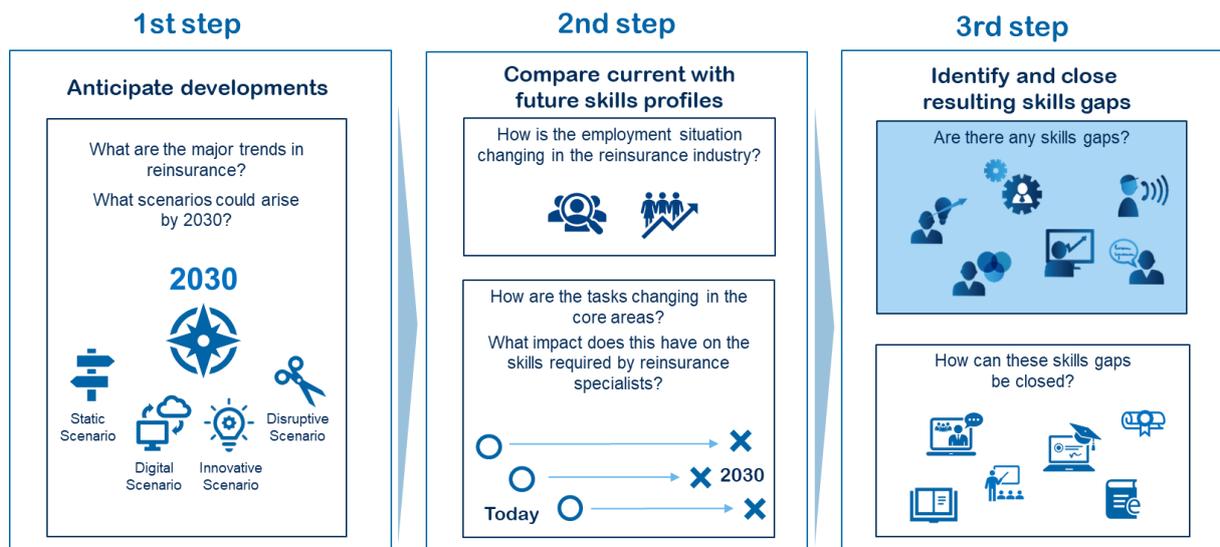


Figure 14: Step 3a 'Are there any skills gaps?'

To identify skills gaps, for a start it makes sense systematically to draw up – possibly on the basis of job descriptions – an inventory of the skills currently available within the company and form clearly defined job families, each with separate competency profiles. Next, the future skills needed are determined, preferably based on the selected scenario and the future business model derived from it. The skills gap is ultimately identified by comparing the skills currently available with those required in the future.

What is the current situation in reinsurance companies regarding awareness of existing skills and those which will become necessary in the future? The reinsurance managers were asked about this issue:

Opinions of the Reinsurance Managers Surveyed

“Do you think that there is a clear understanding in your company of the skills required now and in the future?”

With one exception, the managers replied that there was a good understanding within their company of the skills currently required. This was echoed concerning the skills required in the next five years. In contrast, almost all of those questioned felt that they had insufficient understanding of the skills required for the next ten years. This seems realistic given the dynamic nature of the reinsurance industry, which permits only vague assessment of the reinsurance sector in general and of one specific company in particular.

Despite a clear perception of the skills necessary in the current business climate, it is apparent that employee skills are often not recorded and updated systematically by the majority of reinsurance companies. This makes it challenging to identify skills gaps comprehensively and in a targeted way. The situation is compounded by the fact that there are no job descriptions at all in some reinsurance companies or only ones that fail to outline the skills required in sufficient detail. Larger reinsurance companies usually describe the competencies needed for critical areas such as underwriting, risk management, and accounting. At the same time, owing to the manageable number of employees involved, smaller reinsurance companies have the advantage of having quite a good overview of where skills gaps are opening up or becoming apparent in their company. In this respect, they have a better chance than larger reinsurance companies of being able to act promptly. The larger reinsurance companies generally have to carry out extensive analyses before they can identify possible skills gaps. Here, close collaboration with HR departments and associated business units is essential.

Statements made by reinsurance managers show that skills gaps in the industry are a topical subject. Indeed, two thirds of these surveyed have already identified specific skills gaps or expect skills gaps to emerge in the next five years.¹³

Opinions of the Reinsurance Managers Surveyed

“Are there any identifiable skills gaps in your company and, if not, do you believe that it is likely some will emerge at a certain point in the future?”

The result of the survey was as follows: 45% of respondents were already facing skills gaps while 20% expected to encounter them in the coming five years and 35% did not expect skills gaps to appear for another ten years.

¹³ Comparable statements, though at a more aggregated level, emerged from a survey conducted in 2020 by McKinsey. Executives and managers of various companies were asked when skills gaps were expected in their companies. At least 43% of those surveyed stated that they are already recognizing skills gaps and 44% anticipated that this would occur in their own companies within the next five years (McKinsey, 2020c, p. 2).

4.2. CLOSING SKILLS GAPS

As soon as managers spot skills gaps in the company, they should close them in a way that is appropriate to the situation and within a reasonable period. What measures are suitable for plugging gaps resulting from a lack of competencies?

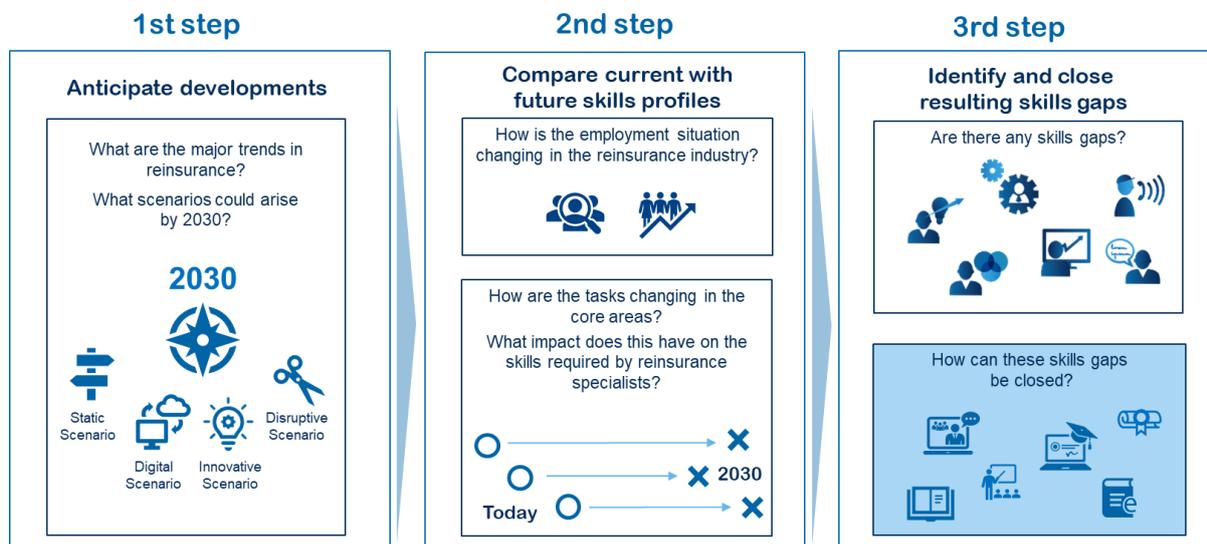


Figure 15: Step 3b ‘How can these skills gaps be closed?’

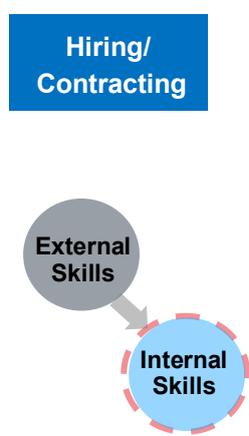
4.2.1. Measures to counter skills gaps: hiring, contracting, and upskilling

There are several measures that can be implemented to equip the company with the skills set required. In addition to taking on new staff (hiring) and drawing on self-employed or external specialists (contracting), there is the option of developing the skills required internally through education and training (upskilling¹⁴) (McKinsey, 2018b, pp. 50–55.) (cf. Fig. 16 and 17).

Upskilling	Description	Benefits and Drawbacks
	Raise the skills of existing employees to a higher level or adapt skills available to the evolving situation.	<ul style="list-style-type: none"> + Internal functional knowledge, experience, and understanding of corporate culture are retained. - Costs as well as the time required for education and training can be high.
	Equip new employees with skills that are still lacking.	<ul style="list-style-type: none"> + Key competencies are developed as and when the situation requires them. - It may be a long time before employees acquire the necessary skills.

Figure 16: Upskilling

¹⁴ In addition to upskilling, expert groups refer to reskilling as a further measure in BCG (2019a) and McKinsey (2020c, p. 2). It relates to retraining courses in which employees acquire new skills to assume new roles. The focus in this study is on upskilling and the term upskilling is constructed along with the definition which appears in PwC: “An organisation’s clear intent to develop its employees’ capabilities and employability, and to advance and progress their technical, soft, and digital skills” (PwC, 2020, p. 30).



Description	Benefits and Drawbacks
Hiring: Hiring individuals or whole teams with the skills required.	+ Total hiring costs may be lower than the costs associated with upskilling. - Difficult to find suitable people in the labor market. - Unclear whether those hired (can) apply their skills adequately.
Contracting: (Temporary) use of external specialists with the skills required, possibly via recruitment agencies or by outsourcing entire functions to specialist service providers.	+ Required skills, some of which cannot be developed at short notice by the company, are immediately available. + Partners can provide the required skills more economically and more flexibly. - Possible loss of company-specific knowledge. - Lack of conformity with corporate culture.

Figure 17: Hiring and contracting

Which of these measures are particularly suitable for reinsurance companies seeking to close existing or potential skills gaps? This question was put to the reinsurance managers:

Opinions of the Reinsurance Managers Surveyed

“How does your company prioritize hiring, upskilling, and contracting to close skills gaps?”

Almost all those surveyed regarded upskilling as the measure which should be accorded the highest priority level in their company. Hiring was regarded as the second most important measure and contracting ranked lowest in terms of priority. Overall, the managers were in agreement that doing nothing to close the skills gap is not a viable option.

“What measures is your company likely to adopt to close possible skills gaps in the five core areas in the next five years?”

Focusing more specifically on the five selected core areas and specifying the scope for action to close skills gaps over the next five years, respondents ranked upskilling in business development, client management, underwriting, and claims first. Only in operations was contracting ranked in top position alongside upskilling. This comes as no surprise since some reinsurance companies have been transferring middle and back office activities to external service centers for some time now. Contracting and even hiring were of minor importance to the other areas. Hiring was considered an alternative to upskilling only in underwriting.

As a rule, packages of combined measures are implemented in reinsurance companies, with a clear preference for upskilling followed, at some distance, by hiring. It is vital to take into account the specific situation in which the reinsurance company currently finds itself and the nature and extent of the skills gaps identified. Therefore, it makes sense to develop strategies aimed at ensuring the right mixture of hiring new staff, the (temporary) use of external specialists, and the professional development of skills already available within the company.

Ways of applying individual measures in reinsurance practice are explained in greater detail as follows:

- **Hiring**

Smaller reinsurance companies rely primarily on hiring. They typically buy in the skills they lack because they have no (or insufficient) internal education and professional development resources. Furthermore, only basic external training courses are offered, designed to strengthen expertise in reinsurance companies. Larger reinsurers will also hire when specific skills – previously either not available or only insufficiently – are required quickly.

This applies particularly to digital technologies and data science. Due to buoyant global demand for specialists with strong digital skills – such as from data science and the development and design of user interfaces – they are either expensive or simply not available on the labor market (BCG, 2019b, p. 2). In response, larger reinsurance companies in particular are investing in long term training and professional development schemes to advance and extend the relevant competencies of their workforce. The intensive, multi-industry competition to attract data analysis, artificial intelligence, and data platform specialists leaves reinsurers with significant problems searching for staff qualified at the level required and within a reasonable time frame. There is no perception of them as players in the labor market among the wider public since their activities generally go on ‘behind the scenes’, i.e., far from sectors with high public profiles. The supply of data specialists with at least foundation knowledge of reinsurance and products and markets is even more limited.

- **Contracting**

Contracting has become an increasingly attractive alternative to hiring for reinsurers in recent years. This permits temporary access to the skills they lack, through employment agencies or from freelancers (McKinsey, 2018b, p. 55). Another option is to buy in skills, even on a larger scale and longer-term, from specialist external companies. This was and still is true particularly to the information and digital technology sectors. However, there is a growing and noticeable tendency, especially among the big players, to retain digital expertise within their own companies and provide professional development opportunities for them (Hannover Re, 2017, p. 8; BCG, 2019b p. 2). In underwriting, collaborative ventures have existed between reinsurance companies and external providers for some time. For example, there are specialist service providers who make exposure and claims data from the insurance markets as well as risk and claims related indices available to assist in risk assessing natural disasters. Overall, there has been enormous potential in recent years for collaboration with partners, above all with insurtechs in the fields of data analysis, risk modeling, artificial intelligence, and loss prevention.

- **Upskilling**

Since reinsurance is rarely offered as an independent part of the curriculum or a subject at secondary or tertiary educational level, internal education and professional development in reinsurance companies have always been particularly important. Only recently have a few education and development courses on reinsurance been offered at university level.¹⁵ Some organizations in the private sector also provide relevant further education courses. Despite this, internal upskilling remains the preferred path because qualified staff are either extremely difficult to find in the external labor market or command very high salaries (McKinsey, 2020e, p. 6). Therefore, it is common practice to train new staff members or employees who change activity areas within the company but do not yet possess the skills required. This can be achieved through specially developed induction programs or on-the-job training, making them sought-after specialists. Thus, an agronomist may become an underwriter, for example, or someone with a background in law may receive further training to qualify as a compliance specialist. Recently, upskilling has received additional impetus due to the digital transformation driven in the insurance industry, particularly by COVID-19¹⁶ (McKinsey, 2020i).

¹⁵ Zurich University of Applied Sciences (ZHAW) has, for some years, been the only higher education establishment in Europe to offer a certified further education course in reinsurance management. The course specializes in current and future top priorities of the reinsurance industry (ZHAW, 2020).

¹⁶ Zurich (Zurich, 2020) is an example of how the COVID-19 pandemic is driving digitalization efforts of the company and changing skills requirements.

The undeniable advantage of upskilling is that skills can be developed and applied according to the company's specific requirements – especially concerning the recognized skills gaps. Additionally, employees granted retraining or professional development are generally already very familiar with the internal structures and processes (McKinsey, 2018b, p. 51). The positive assessment of the benefits of internal and external development for Swiss professionals (EY, 2019, p. 44), which emerged from a survey about the future of work in Switzerland, can be transferred to employees of reinsurance companies. After all, they are among those whose generally high level of education suggests they will benefit from such measures.

The focus a reinsurer places on upskilling depends on factors such as the size of the company, its business model, corporate philosophy, training budget, and the willingness of employees to develop on their own initiative. There are also differences in the way the upskilling activities are split between on-the-job training and training courses. In the latter case, the trend is increasingly to offer these in a virtual format and less via traditional face-to-face training at workshops or seminars (McKinsey, 2020g, p. 7).

Which of the three measures – hiring, upskilling, or contracting – are particularly suitable means of reducing the lack of specific skills as set out in Chapter 3.3.? As part of the online survey, the reinsurance managers reported which measures their companies preferred:

Opinions of the Reinsurance Managers Surveyed

“Which of the following skills would your company acquire initially through hiring, upskilling, or contracting?”

When professional skills related to (re)insurance products and markets are concerned, upskilling was preferred for achieving an appropriate level of qualification within the company. This applies equally to basic digital skills. Where the aim is to supplement advanced digital skills, hiring leads the field, closely followed by upskilling and contracting. However, when professional digital expertise is needed, contracting was preferred to hiring or upskilling.

With regard to methodological, social, and personal skills, upskilling was the most preferred measure to close skills gaps. Hiring is much less practical, and contracting is meaningless.

4.2.2. Upskilling – options for training and further educating employees

What are the options for raising the skills level of company employees, specifically by upskilling? Several measures are worth considering, some of which have been selected and categorized below:

1. In-house training:

- On-the-job training
- Classroom training
- Online-training via digital learning tools¹⁷
- Project work
- Job rotation
- (Temporary) participation in cross-departmental teams
- Internships, apprenticeships, and graduate programs

2. Training and education programs in collaboration with external partners:

- Courses, seminars, workshops, teaching videos (classroom or open online¹⁸)
- Boot camps
- (Part-time) training programs, e.g., with VBV/AFA¹⁹

¹⁷ Examples include micro-learning simulations, gamification, and virtual coaching (cf. McKinsey, 2020g, p. 7).

¹⁸ This would include LinkedIn learning courses and Massive Open Online Courses (MOOCs), provided mainly by universities and institutes of higher education.

¹⁹ The VBV/AFA is the Vocational Training Association of the Swiss Insurance Industry.

3. Academic education and training programs:

- Education: Master's degrees (MSc, MA), Bachelor's degrees (BSc, BA)
- Postgraduate training: e.g., (Executive) Master of Business Administration (MBA), Certificate of Advanced Studies (CAS), Diploma of Advanced Studies (DAS), or Master of Advanced Studies (MAS)

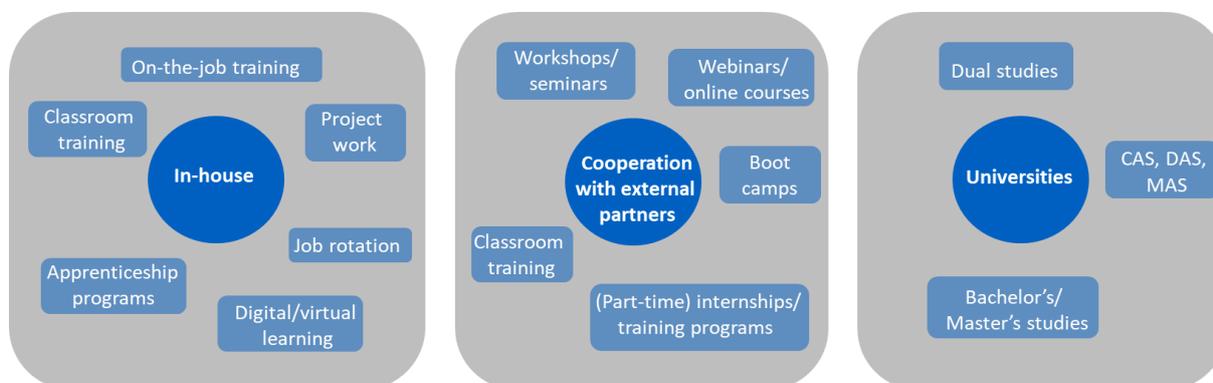


Figure 18: Upskilling measures to close skills gaps

The question arises for reinsurance companies, as in other organizations, concerning which of the various upskilling measures are most suitable for equipping employees with the necessary skills. Depending on the company-specific situation, consideration will usually be given to different sets of measures. For example, larger reinsurers often have internal education and training programs²⁰, which smaller companies cannot offer as these would stretch their limited budgets. Managers familiar with professional development for employees report that on-the-job training is the preferred option in these cases. Based on statements made by the reinsurance experts working in the industry, the various upskilling measures available can be ranked in order of importance as follows:

	Actions	Evaluation
In-house training	On-the-job training	●●●
	Job rotation	●●
	Projects	●●●
	Apprenticeships/graduate programs	●●
	Classroom training (internal workshops, seminars, etc.)	●●
	Virtual training (e.g., eLearning, adaptive learning programs)	●●●
Training collaboration with external partner	Workshops, seminars, bootcamps, etc.	●●●
	Digital platforms	●
	(Part-time) internships/ training programs (e.g., with VBV)	●●
External education/training	Higher vocational education (e.g., higher technical school)	●●
	University degree (BSc, MSc)	●●
	Postgraduate education / short-term (e.g., CAS)	●●
	Postgraduate education / longer-term (e.g., MAS, MBA,)	●

Scale: ● = not/less important / ●● = important / ●●● = very important

Table 4: Assessment of upskilling measures by reinsurance managers

²⁰ There are examples of such programs running at Hannover Re (2020), Munich Re (2020d), and Swiss Re (2020c).

Statements made by the reinsurance managers surveyed concerning the upskilling measures preferred in their companies can be summarized as follows:

Opinions of the reinsurance managers surveyed

“What measures are preferred to train employees in your company?”

The majority of those questioned preferred in-house training. There was broad consensus that of the individual measures within this category, on-the-job training was the most suitable, followed by participation in projects and virtual training. There was divergence of opinion on whether measures such as job rotation, apprenticeships, graduate programs, and classroom training were useful.

For ‘training collaboration with external partners’, workshops, seminars, and similar measures were preferred by most of the experts interviewed. Responses indicated that digital learning platforms were not among the most popular forms of training – at least not currently. Purely external training and education was considered inferior to the two other training categories (cf. Table 4). Views on whether these somewhat time-consuming and expensive forms of training are suitable forms of professional development were balanced. The only type of training to meet considerable resistance was post-graduate education in the form of a MAS or MBA, which was rejected by a clear majority.

4.2.3. Obstacles to adequate upskilling

Although the requirement for continuous learning in reinsurance companies is undisputed (reinsurance companies regard themselves as part of a “knowledge industry”), there is a wide gap between aspiration and reality. Education and training are frequently not given the status they deserve in a strategic context. There is no forward-looking concept in some cases, and in others, it is systematic, consistent implementation in the ongoing reinsurance operation that is lacking. Especially in difficult times – which would necessitate a change or re-positioning of strategic priorities and therefore require employee skills to be updated – it has been noted that reinsurance companies fail to implement education and training programs designed to meet the needs of the situation. This manifests itself mainly in the fact that the level of financial and human resources mobilized is insufficient. As with the traditional reinsurance business, one can speak of procyclical behavior with investment tending to intensify in hard cycles and reduce in soft cycles.

What are the principal factors slowing the efforts of reinsurance companies to offer education and training? In this context, the reinsurance managers surveyed were asked about the obstacles facing their companies in respect to the introduction and application of upskilling measures (cf. Table 5 below):

Obstacles	
Skills gaps not yet determined	●●
Assessment of the future seen as too vague to determine the skills required in the future	●●
Lack of internal resources (budget, people, tools, facilities, time) to deliver the upskilling programs needed	●●
Lack of suitable external training courses (workshops, certificated courses, etc.)	●
Training courses with partners resp. external courses too expensive	●
Motivate employees to learn and apply the expertise acquired	●
Senior management not supportive	●

Scale: ● = mostly does not apply / ●● = partially applies

Table 5: Assessment of obstacles to the closure of skills gaps by reinsurance managers:

The survey of reinsurance managers revealed that the challenges facing companies vary from company to company. No single challenge was regarded by the majority of those questioned as a significant obstacle to implementing upskilling measures. A summary of the statements made by managers concerning obstacles is given below:

Opinions of the Reinsurance Experts Surveyed

“What are the greatest obstacles currently facing your company?”

In terms of obstacles to an adequate education and training program, the emerging evidence was mixed. The criteria ‘Skills gaps not yet determined’, ‘Assessment of the future too vague to determine the skills required in the future’, and ‘Lack of internal resources [...] to deliver the upskilling programs needed’ were regarded by half the experts as an obstacle, while the other half disagreed. The remaining criteria listed ‘Lack of suitable external training courses [...]’, ‘Training courses with partners/external courses are too expensive’, ‘Motivate employees to learn and apply the expertise acquired’, and ‘Senior management not supportive’ were viewed as an obstacle by a minority only.

5. Options for Closing Skills Gaps by 2030

5.1. PROFESSIONAL (RE)INSURANCE SKILLS

5.1.1. Significance of professional (re)insurance skills by 2030

Although there is a broad consensus that digital transformation has and will continue to have a substantial impact on the (re)insurance industry, it is assumed that the existing value chain in reinsurance companies will neither disintegrate completely nor unravel significantly (cf. Chapter 2.3.). The core business, i.e., risk-taking and the associated provision of services, will remain a central business strategy of reinsurers for the foreseeable future. For this reason, reinsurance companies should certainly not neglect their core areas of expertise, namely assuming and managing risk and providing insurance-related services.

This applies to the job families of business development, client management, and underwriting, as well as operations and claims. Everyone must have the relevant professional expertise, key elements of which include extensive knowledge of (re)insurance techniques, products, and markets. However, staff in other functional areas such as finance, risk management, and compliance should possess at least basic knowledge of (re)insurance products and types of contracts, as well as of (re)insurance markets. It is assumed that the requirements for specialist expertise on the part of employees in the five core functions highlighted in this study will continue to increase. The principal reasons for this are as follows:

- greater demand for tailored, complex risk management solutions such as non-proportional multi-line/multi-year programs,
- greater demand for value-added services (for example, in risk prevention),
- increased demand for concepts to cover new types of risk such as reputational and intellectual property risks, and
- the creation of concepts to close protection gaps, primarily in developing markets.

However, it can also be assumed that the boundaries between functional areas will gradually become more porous, especially in the core functions. The concept of operating in silos, i.e., closed company units that do not (wish to) associate with other teams, will be superseded by cross-departmental communication and collaboration (Intelligent Insurer, 2020, p. 12). It will become increasingly important for employees to have skills extending beyond their own functional areas; an underwriter, for example, should possess in-depth knowledge of main product and market developments in the primary insurance sector. In turn, a claims manager should understand complex solutions relating to risk mitigation and prevention.

Likewise, the previously strict separation of specialist reinsurance know-how on one hand and information or data-related expertise on the other hand is disintegrating rapidly. Employees in both areas will need to understand the issues and problems arising in each other's domains. Ultimately, they will need a thorough understanding of both areas without necessarily becoming an expert in the other (GR, 2019, p. 2).

5.1.2. Options for closing reinsurance-related skills gaps

Due to the almost complete lack of external education and training in subject-specific knowledge, internal knowledge transfer will remain the number one option for reinsurers for some time to come. On-the-job training, project work, and job rotation will be the measures preferred by small and medium-sized enterprises for closing skills gaps. Additional internal education and training programs, delivered within the framework of learning workshops over several months, have previously been and will remain unviable options for this group of reinsurers since they require substantial internal resources that may be insufficient or unavailable.

Larger reinsurance companies have more room for maneuver, and these companies will likely continue their established training programs. However, the focus is shifting – partly to improve efficiency – from classroom training to virtual learning programs such as eLearning or online simulations (McKinsey, 2020g). The majority of companies are already working with external partners who are specialists in the production of digital learning content.

Despite this, even an efficiently organized education and training program for employees ties up resources and usually incurs considerable cost. Additionally, internal education and training maintain a strongly inward-looking focus on company-specific structures. At the same time, too little consideration is given to crucially important external developments in the fields of products, markets, or technology. In turbulent times, it is particularly important to take account of external influences in education and professional development scenarios in a way that is both contemporary and situation oriented. For this reason, it is advisable to collaborate with external partners who bring additional know-how and a broader perspective to the table. However, as previously outlined, the supply of external courses covering reinsurance is very limited. At least two German-speaking universities – the Technical University of Cologne (TH Köln) and the Zurich University of Applied Sciences (ZHAW) – offer relevant, practice-oriented education and training courses culminating in higher-level qualifications.

Additionally, there are further education reinsurance courses initiated by insurance associations such as the Insurance Institute of Switzerland (IIS), which generally focus on teaching the basic elements. Like internal education programs and formats, external learning platforms apply digital techniques, providing excellent opportunities for employees to acquire basic and advanced education in a way that is flexible both in terms of time and content.

5.2. DIGITAL SKILLS

5.2.1. Significance of digital skills by 2030

As noted in Chapter 3.3.3., digital transformation reaches deep into the structures and processes of reinsurance companies. Does it follow from this that reinsurance job profiles will change, if not radically, then at least substantially? In many functional areas, particularly those in the core functions considered in this study, various levels of basic or advanced digital skills will be required in the future to analyze complex data or develop innovative concepts for solutions. It seems likely that professional digital skills may even become essential for underwriting (cf. Chapter 3.3.4.).

It can be concluded from this that most, if not all, employees in the core areas will have to acquire or develop digital skills, calling for considerable effort and expense on the part of reinsurance companies. One way of keeping the associated outlay within manageable limits while achieving the required breadth of digital expertise would be to set up a centralized team of digital experts in the company and to use knowledge-sharing platforms:

- **Digital Expert Teams**

As a rule, centralized competency teams apply their digital expertise to support employees in all the different regional and functional areas of the company, offering them comprehensive, smart analytics services and data-driven solutions. They also maintain a dense network – for example, with the company's own IT – with data specialists in the business units and with external partners dealing with digital topics (Swiss Re, 2016; Hannover Re, 2017, p. 8.).

- **Knowledge-Sharing Platforms**

These central platforms can be used by various functional areas within the company for data integration and data analytics.²¹ Together, they are an effective instrument for combining the know-how of data and other specialists with expertise in the core functional areas (Accenture, 2019, p. 33). Platforms like this make a significant contribution to encouraging collaboration between experts in industrial practice, analysts, and data scientists. They enable experienced data scientists to give employees in individual functional areas access to

²¹ Companies including Munich Re in collaboration with StarMind, an artificial intelligence developer, are using the application 'OneMind' (Munich Re, 2018). In a strategic initiative, Swiss Re launched 'Stargate', a scalable platform which links employees, data sets, and analysis capacities, enabling very large data sets to be analyzed, evaluated, and visualized (Swiss Re, 2018a, p. 11).

sophisticated models and modern methods, e.g., for predictive underwriting, parametric solutions, and smart automation. In turn, employees in the core functional areas have the option of using the powerful, ready-to-use infrastructure of these platforms via visual point-and-click interfaces without the need to acquire advanced digital knowledge themselves. For example, they could easily use results from efficient analysis methods in the form of apps or visual dashboards for their function-related tasks. Overall, knowledge-sharing platforms help avoid redundancies and foster cooperation between functional units and departments that are frequently relatively isolated. Ultimately, they will eliminate the need to train the majority of employees to become data experts, although employees in the core functional areas should possess some basic skills in the use of digital technologies to ensure they make adequate use of these new possibilities.

5.2.2. Options for closing digital skills gaps

Hiring and contracting are recommended particularly when companies have either no digital skills or not enough for activities such as the development of predictive underwriting or the implementation of complex machine-learning applications. Therefore, it can be assumed that in the case of small to medium-sized reinsurance companies, only a few employees, mostly in IT, will have advanced or professional-level digital skills. However, larger-scale reinsurance companies likewise have a continuous need for specialists to help keep pace with the rapidly progressing digitalization in cloud technologies, data visualization, and robotic process automation. To close the skills gaps in these cross-functional and cross-organizational domains of digital technologies and applications, a strategy of hiring specialists is realizable in the short term, provided professionals of the right caliber can be found on the labor market.

In addition to ensuring the availability of qualified data scientists, it is vital for companies that employees in the five core areas have the essential fundamental and advanced digital skills. Larger reinsurers may consider internal training and education programs designed in cooperation with digital experts within the company. In particular, they should focus not only on tailored, internal courses but should also apply digital learning techniques, including eLearning, training videos, and interactive tutorials. Ideas surrounding self-directed learning programs have also gained ground in recent years (Accenture, 2019, p. 33). One example of this is adaptive, personalized learning via platforms that use artificial intelligence to gauge the learner knowledge and recommend personalized learning paths (In-Albo, 2016). Concepts like this are worth pursuing further.

Collaboration with external specialist providers of digital transformation is an option for small to medium-sized reinsurance companies as well as for larger ones who cannot or choose not to maintain internal education and training facilities. Short term programs in this context could include workshops and boot camps. Among the short to medium-term courses are advanced trainings on digital transformation offered by universities – some as part of certified qualifications (Certificate of Advanced Studies, CAS; Master of Advanced Studies, MAS).

5.3. METHODOLOGICAL, SOCIAL, AND SELF-COMPETENCIES AS ADDITIONAL SKILLS

5.3.1. The significance of methodological, social, and self-competencies by 2030

In the coming ten years, digital transformation will require not only adaptation of the digital and specialist competencies but also of the methodological, social, and self-competencies, which are often grouped under the umbrella term ‘soft skills’. Previously clearly defined functional areas in reinsurance will become blurred as a result of digital interaction, and sooner or later, cooperation among those affected will be useful as well as necessary.

Technological innovation is already cross-departmental in nature and impossible without functional collaboration involving various teams. As far as the companies are concerned, however, it demands considerable effort – apart from the acquisition of digital and specialist expertise – to encourage progress in the soft skills required by employees (McKinsey, 2020e, pp. 6 and 8).

Changes in customer demand behavior and an evolving risk landscape will result in more complex and more demanding tasks and solutions requiring more than specialist knowledge on the part of employees. Given the more dynamic environment, agility, scrutiny, analytical thinking, conceptual work, problem recognition and solutions, and a willingness to learn as well as participate in diverse cross-functional, cross-company teamwork are just some of

the skills becoming increasingly important for reinsurance companies in a multi-dimensional world of work (Cognizant, 2017, pp. 15–16; McKinsey, 2020e, pp. 3 and 5) – all the more so because digital technologies like artificial intelligence cannot replace these soft skills.

5.3.2. Options for closing skills gaps in the field of methodological, social, and self-competencies

In addition to established measures such as learning by doing, coaching, seminars, and continuing education courses, partnerships with technology companies – including insurtechs – can provide access to skills that have previously been hidden in the somewhat less innovative world of reinsurance (Accenture 2015, p. 7). Skills such as creative thinking, pragmatism, and decisiveness are attributed to insurtechs and other technology companies (Axa, 2018; PwC, 2017, p. 6). These are characteristics that employees of reinsurance companies – not only those in senior management – should possess to continue functioning successfully in the market.

6. Recommendations

As described in the previous chapter, there are several options for closing gaps in the three skills sets selected in this study. This applies, particularly, to upskilling measures. Traditional or innovative, internal or external, individualized or group-based, short term or long term, ad-hoc or systematic – all planned measures are worth considering. It is not the purpose of this study to give general recommendations about which of the available options are particularly suitable for reinsurance companies as there is too much variance in the specific circumstances of individual reinsurance companies and the influencing external factors. Ultimately, it depends largely on how senior management view the future of their company, which scenario is regarded as most likely, and to what extent a new approach will have to be adapted to the business model.

When considering critical influencing factors affecting the reinsurance sector, some points can be derived from analyzing skills profiles in central functional areas. The following recommendations can help reinsurers ensure their employees successfully contribute to a sustainably profitable company in 2030.

- **It is crucial to get the mix right**

This statement may appear trivial, but in practice, it is a challenge for reinsurance companies to find the optimum mix of essential skills and measures to close skills gaps.

- **Professional, digital, and soft skills**

Relatively one-dimensional activities and those related to one particular job, such as purely actuarial tasks or administrative contract processing, will be superseded by activities increasingly performed by teams and requiring in-depth professional knowledge as well as digital technology skills in addition to more extensive methodological, social, and self-competency. It is important to ensure that the acquisition and, in some cases, the development of traditional, professional (re)insurance knowledge and skills continue to be given top priority. The aim is that each employee in a reinsurance company has at least basic, sector-specific knowledge and that employees in core functional areas also possess advanced to professional expertise wherever possible.

In many industries, digital skills are becoming increasingly important for the future, and in some cases, exceptionally so. This is applying more and more to reinsurance as well. The digital transformation must not be underestimated, particularly in a sector that tends to think conservatively and in which innovative thinking and action are comparatively rare. On the contrary, the measures required to adapt skills sets must be introduced at as early a stage as possible, either in the form of continuing education and training, by hiring digital experts, or via partnerships.

To ensure that the reinsurance business is fit for the future, it is also essential to choose the right blend of experienced employees (with first-hand knowledge of hard and soft cycles) and staff possessing new digital skills coupled with social and self-competency.

- **Upskilling, hiring, and contracting**

Here too, the secret is to find the right balance. Since hiring and contracting can be difficult due to a limited supply of reinsurance specialists and digital experts, upskilling takes priority, particularly in areas where strong (re)insurance knowledge is required. This is confirmed by the survey conducted as part of this study (cf. Chapter 4.2.1.).

- **Aligning upskilling to anticipated development**

Many of the training programs in and for reinsurance companies are still based on competency profiles needed in the last 10–15 years. Moreover, when starting a career, employee skills are not necessarily the same as those they will need in the future for a particular area of activity. It is important to ensure that employees receive timely education and training to stay abreast of expected future developments. As part of a 'learning

and development' strategy (McKinsey, 2020e, p. 7), it makes sense for a company, preferably in close collaboration with external providers of further education and training, to develop new courses and adapt learning content and format in line with the latest developments. It is also important that external (continuing) education facilities pay even greater attention to the skills needed in reinsurance and develop correspondingly appropriate courses.

- **Upskilling cannot be a stop-start activity**

Experience shows that on-off, ad-hoc training sessions or courses are insufficient. Reinsurance companies, in particular, with their pronounced market cycles, run the risk of linking their commitment to continuing education and training to economic success and providing education and training in profitable periods primarily as a reward or motivation. Indeed, it is when reinsurance companies are exposed to strong headwinds and are confronted with major changes that it is crucial to equip employees with the help of flexible upskilling training programs in good time to face the future challenges. Reinsurance companies that tighten their education and training budgets in difficult times are delaying essential investment and will ultimately fail to make any long-term savings (McKinsey, 2020i, p. 7). Instead, they should commit to the systematic and continuous development of their employees' skills as part of a commitment to lifelong learning.

- **Embrace an outward-looking approach**

The more cross-functional and interdisciplinary the activities in reinsurance companies become, the more important it is to work closely with partners within the (digital) ecosystems, in which the companies operate (Hannover Re, 2017, p. 5). It is advisable, therefore, to cooperate with external partners who bring with them additional know-how and an external perspective.²² Otherwise, there is a risk that reinsurance companies – which tend to be traditional, long-term players with little dynamism and innovation – will fail to recognize critical external developments in good time and, therefore, make inadequate use of external expertise. Close collaboration with stakeholders in external sectors, including clients, insurtechs, consultancy companies, and education and training institutions, is advisable. Such assistance can help identify any skills much more comprehensively and enable appropriate action to be taken. In addition to this, digital learning platforms (Munich Re, 2020e) or online courses developed either entirely by relevant providers or in collaboration with education and training facilities can be used. With the help of digital technology, the range of measures to bring a larger number of employees up to the required skills level relatively quickly can be broadened considerably. In addition, digital learning techniques provide the option of personalizing learning content more effectively, i.e., tailoring it to match individual educational requirements.

- **Strategic support for a culture of learning**

Training and development programs are particularly successful when business managers promote a culture of learning or offer incentives to study and when HR processes, such as talent management and performance reviews, provide motivation to engage with professional development. Employees should have the option of continuously developing their skills and knowledge, learning on the job, or taking time out to study (BCG, 2019a, p. 11). As the survey conducted as part of this study shows, there is support for upskilling across the management of reinsurance companies. However, it is vital that these measures are embedded in a strategic context – *talent strategy* must be closely linked to *business strategy*. This means that as well as HR, senior even middle management must accept responsibility for developing and implementing measures of this nature (EY, 2017b, pp. 7–8).

Of course, senior management measures do not, alone, guarantee success; employees must be capable, willing, and motivated to adapt their skills to changing work requirements through continuous learning.²³ The high level of educational qualification in the reinsurance industry – many employees have a university degree – suggests a strong affinity with further education and training; this is confirmed by the survey. However, day-to-day business frequently prevents even highly motivated employees from contemplating

²² Swiss Re, for example, has participated in an ada Fellowship Program, an interdisciplinary, in-service training program focusing on the most important future-oriented technologies, their potential applications, and the digital transformation in the company.

²³ According to a quantitative survey of Swiss employees conducted by EY, 45% of those surveyed regard the company which employs them as responsible for ensuring job security in the future and only 23% view this as the responsibility of employees (EY, 2019, p. 45).

additional study, attending to their further education and training needs, or ultimately, to their own careers. In this case, it is the responsibility of their superiors and middle managers to commit to supporting employees who are willing to undertake continuing education and training.

In principle, there is a good understanding in the reinsurance sector of the skills crucial both now and in the future for ongoing success. However, the ‘acquisition’ and, more significantly, in-company development of these skills are frequently haphazard. Additionally, not enough consideration has yet been given to future developments, particularly in digital technologies. Therefore, it is incumbent on reinsurance company managers to identify the skills required more systematically and close any obvious gaps. This should be coupled with an understanding that the closure of skills gaps is no longer the sole remit of human resources or a purely internal company matter. Accordingly, appropriate measures need to be planned and implemented in close collaboration with partners working alongside the reinsurance company in (digital) eco-systems.

The following figure shows the concept developed in this study for systematic, strategy-based identification of the skills required in the future and closure of the skills gaps detected. We trust this will help reinsurance companies in having the right skills set in place for 2030.

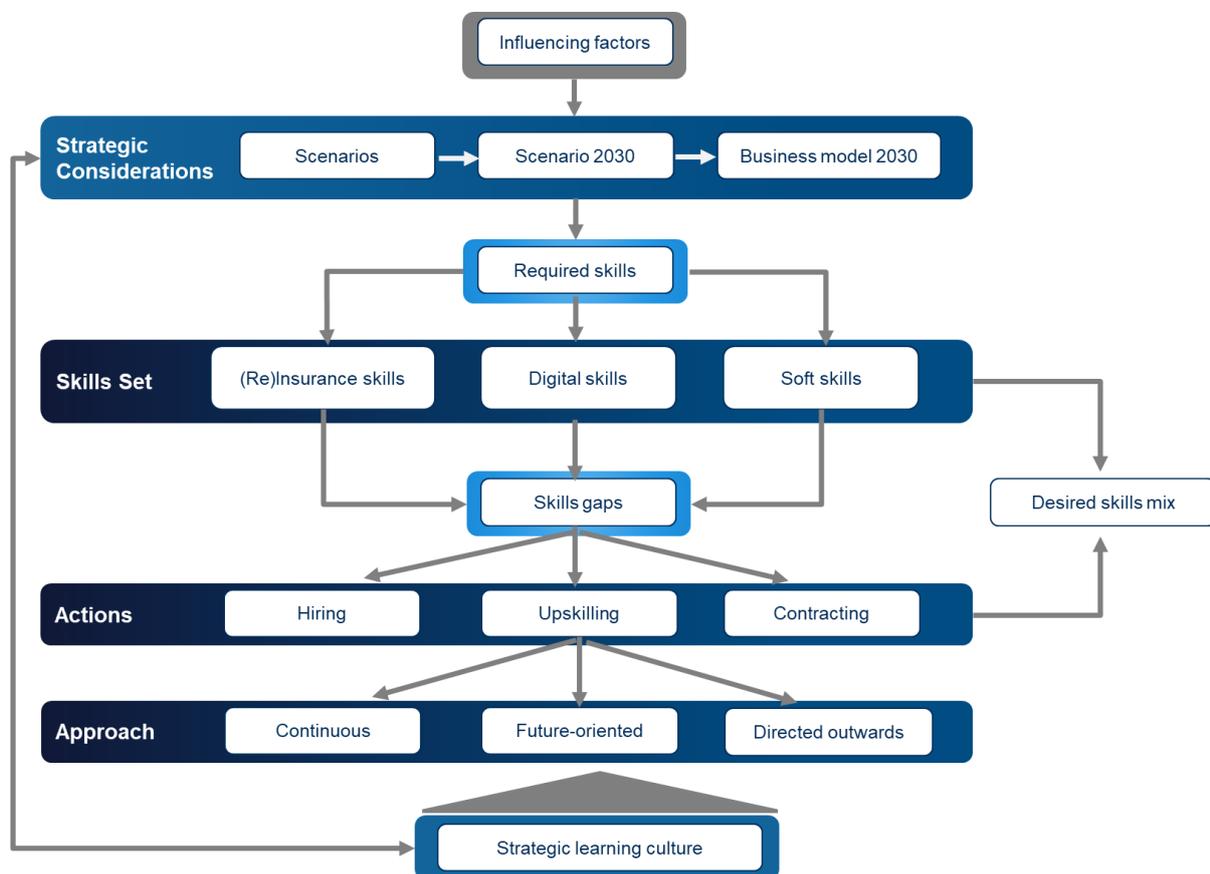


Figure 19: Skilling concept for reinsurance companies

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