Technology towards 2033

The future of insurance and supervision

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Management summary

Digitalisation is undeniably going to have an impact on the insurance sector and its supervision. Insurers are gathering more and more data and applying smarter data analysis techniques, which is also changing their operational management and distribution processes, from pricing to claims settlement. This applies to Dutch insurers but also to many European parties that could enter the Dutch market. It is an issue that is generating new questions and challenges in the field of supervision.

This report examines the potential influence of a digitalising world over the next decade. We will describe the main technological trends, their impact on insurers and distribution, the influence of European regulations and the consequences of all this for the AFM and policymakers.

The main technological trends range from growing data volumes and more powerful analytics to increasing connectivity and security and skills-related issues. The growing number of data sources, due in part to the number of devices connected to the Internet, creates opportunities for continuous data interaction between insurers and their customers. As key data sources, figures and text can be enriched with analyses of conversations, photos and video material. Connectivity and techniques to access and share data allow new partnerships and services that were previously impossible.

Insurers can apply those techniques in their pricing, policy conditions and acceptance policies. Every consumer can be offered a personalised premium that reflects his or her specific actuarial risk or spending potential. Similarly, policy conditions no longer need to be presented as a fixed set of clauses. Instead, they can be made to measure so that every individual consumer receives a completely individualised product at an individualised price. Acceptance policies can be tailored to any level the insurers are able to organise. Preventive measures could help to ensure that risks which are hard to insure, such as cyber-related threats, stay affordable. Claims settlement processes, including fraud detection, could be largely automated.

Embedded insurance and automated advice are changing insurance distribution processes. By integrating ('embedding') insurance modules on websites, for instance, insurers are no longer restricted to offering such modules upon the purchase of a product (such as a trip or a bicycle); instead, distribution can extend to a potentially infinite number of intermediaries throughout the lifespan of the product. At the same time, insurances that are not tied to a specific product, such as term life insurance, could be offered through a variety of platforms. Automated advice makes it possible to advise customers without human intervention even in the case of complex and high-impact products. This applies to embedded insurance, but also to the traditional distribution channels.

Data usage is facilitating the development of new types of insurance. It provides access to time and location-specific insurance - for example, during work performed under a flexible contract or a short visit abroad. Behavioural pricing can be used with almost all products, and ranges from rewarding specific driving behaviour and lifestyle to reading out devices connected to the Internet. Parametric insurance, a type in which the insurer pays when a specific threshold value has been reached (for example, a specific amount of precipitation during a festival), is easier to develop if the insurer has more data at its disposal, and may actually be indispensable to keep certain risks insurable.

In addition to the impact on processes, distribution and products, the role of the insurer itself could change considerably. In a platform role, insurers become increasingly dependent on the supplementary services they can provide. These may be connected with a particular product, such as breakdown assistance under a car insurance policy, or services in other categories, such as solar panel installation. In a further stage, insurers could act as ecosystem managers, looking after all their customers' concerns in domains such as vitality and housing.

Alternatively, the insurer's role in the insurance distribution chain could be reduced, with operational and contact management shifting to the manufacturer or an existing platform party (one of the BigTechs, for example). Likewise, reinsurers could become indirect competitors of insurers, by supporting insurtechs financially or with insurance expertise. In both variants, it is essential to prevent competitive imbalances caused by data advantages arising from a strong market position or concentration of a few players in relation to the insurer.

The EU is trying to carefully manage technological developments using both horizontal and sector-specific legislation. The series of European regulatory initiatives emphasises the need to confront challenges arising from ongoing digitalisation and protect the position of consumers. In addition to introducing new obligations, these initiatives create new opportunities (through data sharing, for instance) that may also influence the insurance sector.

The anticipated developments driven by digitalisation create new risks. For example, personalised pricing and conditions could potentially erode solidarity and result in uninsurability. Insurers that operate as platforms or ecosystems are increasingly offering services and products that are largely beyond the scope of supervision, but can still be decisive for customers. According to the AFM, the increasing possibilities for cross-border services, facilitated by digitalisation, underline the importance of a high priority for - and uniform interpretation of - behavioural supervision in all European countries.

The role of the AFM will evolve to reflect developments and risks. For example, risks related to solidarity and uninsurability will further increase the importance of the AFM's signalling function towards policymakers, in addition to its focus on individual institutions. Integrating insurances into a product, service, app or website will potentially result in a plurality of intermediaries, which may call for a new supervisory approach. Supervision to ensure appropriate advice will change as the by-products of insurance become more decisive for consumers. The importance of cooperation with other supervisory authorities, both within the Netherlands and in a European context, is growing. However, the AFM's existing principles will remain more or less unchanged: forward-looking supervision of both processes (such as PARP) and outcomes (such as advice). In this way we safeguard both individual and collective well-being and ensure a level playing field.

In the years ahead, we will have to design our supervision in such a way that it reflects future developments as much as possible. In addition, we call upon insurers, supervisors and policymakers to consider the possible implications of the scenarios outlined above, also in terms of ethics and policy. This is important in order to reduce the risks of digitalisation, also in the future, while at the same time using the opportunities it brings to improve insurance products and services for consumers.

01 **Introduction**

Insuring risks is a centuries-old concept, reportedly dating back as far as 500 BC. The need that people feel to cover risks has only increased over the centuries. For consumers, the various types of insurance can roughly be divided in two categories: non-life and life. Many of the insurance types within these categories have largely remained unchanged for years.

The question is to what extent the digitalising world is going to influence the insurance sector. The historical trend suggests that the fundamental concept of insurance, covering risks, is unlikely to change any time soon. There will always be risks, and new risks will continue to emerge - and people will want to cover them. However, digitalisation may have the effect of reducing or totally eliminating certain risks, so that there is no longer need to insure them.

At the same time, digitalisation is undeniably going to have an impact on the insurance sector. For example, it may encourage insurers to embrace digital technologies to optimise their processes and develop new propositions. It may also lead to shifts in the value chain and changes in the role of existing supervised institutions. Ultimately, even core aspects of the insurance concept may change, for example in terms of solidarity.

This also raises the question of whether this requires an adaption of supervision in response, and how the role of the AFM compares with that of other supervisors in the digital playing field. Within the insurance concept, existing risks can increase and new risks can emerge. The AFM will continue its firm commitment to ensuring compliance with the duty of care and putting the customers' interests first.

1.1 Objective

We aim to answer four questions through this study, in anticipation of developments over the period until 2033:

- What does digitalisation mean for the insurance sector and, more specifically, for the market parties supervised by the AFM?
- What is the influence of current European regulations, and how will this develop?
- What does this mean for the AFM's supervisory practices?
- What ambitions do we need to formulate today in order prepare for reality as we may find it a decade from now?

This exploratory study is intended to provide insights and focal points for supervisors, insurers and policymakers.

1.2 Scope and approach

This exploratory study encompasses the full width of insurance products and distribution. In terms of stakeholders, the principal focus is on the parties that currently come within the scope of the AFM's supervision: insurers, underwriting agents and intermediaries/advisors. However, in the knowledge that the ecosystem and relationships within that ecosystem may change, we will not lose sight of other stakeholders. This is why this exploratory study also addresses the potentially changing roles of and relationships between the parties in the ecosystem. The insights obtained via this study emerged from a combination of literature research and interviews with stakeholders within and outside the sector.

1.3   Reader's guide

This study aims to provide a thought-provoking image of the possible development of the insurance business towards 2033. First we will present an overview of the technological developments that could potentially impact the sector (chapter 2). This is followed by the possible impact of these developments on the sector (chapter 3). The (prospect of the) impact of technological developments and the associated changes will generate a wide range of EU policies (chapter 4). All this will have consequences for the role of the AFM in the overall supervisory landscape and its supervisory approach (chapter 5).

Figure 1. Technological trends and the impact for insurance, policy and the AFM
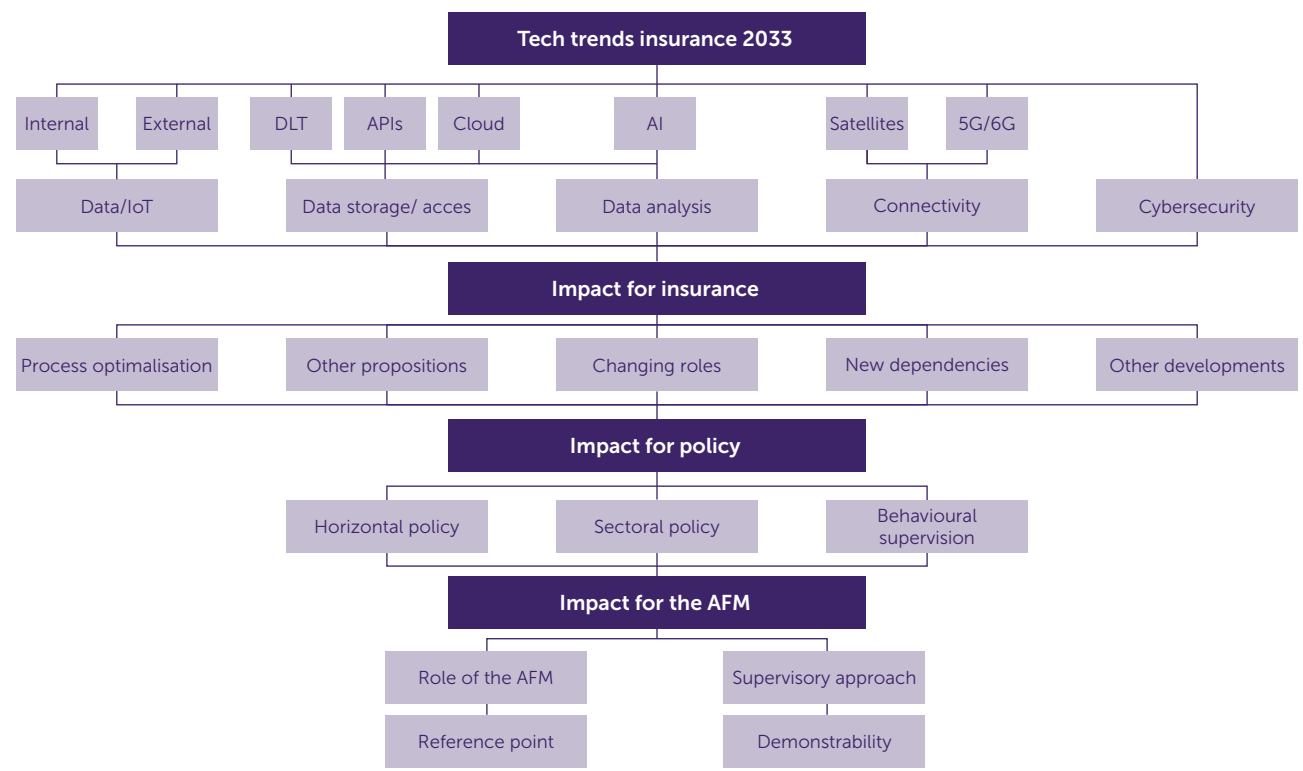
02 **Technological trends**

What developments will shape the insurance market over the next decade? More specifically, how will technology and digitalisation impact the sector? In this chapter we will describe developments that can potentially influence the insurance market, with a particular focus on the impact of technology and digitalisation.

Connected devices generated enormous data volumes, which are relevant for health, fitness, mobility and the home environment. Cars are packed with sensors and show more and more similarities with smartphones when it comes to the technology inside the machine. There is not a watch left on the market that only tells its user what time it is, and we use special apps to control our home devices remotely. We no longer use WiFi merely for our laptops, and 5G and satellite networks are also used by cars. All these developments offer convenience, but also come with challenges. The economy and society at large are evolving in synch with these technological developments. This can potentially result in complex situations, for example with regards to privacy. Who exactly receives the data produced by my car, my watch or my coffee machine?

2.1   Data

The digital system is designed to generate, store, share, process and present data. Every single action performed on and with a device generates and exchanges data. Data can be obtained in a variety of ways. It can be own data that was developed internally, produced by analyses, or gathered during interaction with an existing or potential customer. Data can also be obtained externally, for example through partnerships or from public sources, and it may be purchased or derived from devices. This is facilitated, for example, by the Internet of Things (IoT), where everyday devices such as coffee machines or baby intercoms are connected to the Internet.

Data sources

Since the early years of the Internet, when organisations only had access to the data they generated themselves or obtained through interaction with existing or potential customers, the data web has expanded rapidly. Data which helps to guide consumers in customer experience processes from orientation to purchase is obtained from a variety of sources. The most suitable data sources are identified and combined for every phase in the customer process and used in (near) real-time analyses.

Initially the focus was on attracting and onboarding customers, but in the years to come insurers will also, increasingly, be able to monitor them. Generating relevant data starts in the onboarding phase. Where necessary, external data sources can be used to improve the quality of and/or facilitate the onboarding process. The data flow generated during monitoring depends on the type of insurance, the business process and the type of interaction between the insurer and the customer. In this context, data offers significant added value and opportunities to make alterations that benefit both the insurer and the customer.

Smart devices connected to the Internet will grow in popularity over the next few years, contributing to continuous interaction and data flows between customers and insurers. Those data flows will further improve insurers' ability to understand their customers and translate those insights into more and more personalised products, prices and services, for instance.

A question that is becoming increasingly important is: who holds the data? As described above, data is generated during more and more events. It is also becoming ever more important for institutions to gain access to the data that is relevant for them. However, the institutions need to question themselves what data is available and relevant and how they can access it (for example, by buying it or through some form of collaboration).

In the future it will prove to be a challenge for institutions to gain and maintain such an overview of the available data. The data curve continues to grow exponentially, and data quality may improve further. However, data can also become obsolete, lose its relevance or turn out to be incorrect.

Types of data

The days in which figures and plain text were the most important types of data are over. Today, advanced analytical techniques also enable us to record and analyse other types of data. Voice conversations can be easily transferred to text, enabling automated analysis of conversations. Neural networks can be used to analyse photos and videos down to individual pixels, which offers a range of possibilities in a sector where visual evidence is extremely valuable, especially in the non-life segment.

Data standardisation

Data standardisation is essential to allow data to be shared with a wider group, including third parties. However, standardisation of and access to data, throughApplication Programming Interfaces (APIs), for example, can only be made compulsory through government regulation.

Data sovereignty

For many years, data was referred to as 'the new gold'. 'Free' services and apps were offered in exchange for user data. In the years to come, existing market powers may shift (under the influence of legislation, for example), with consumers gaining more insight into, and more control over, the use of their data by organisations. Those organisations will have to respect the limits of data usage and report more transparently on how they use data for services or processes.

Data quality and reliability

Data quality has a domino effect on all subsequent steps in the process. If data fails to meet the highest standards of quality and reliability, models based on that data become less reliable. They will lose their added value and may produce flawed outcomes - with potentially disastrous consequences. Organisations will be eager to ensure the quality of data and optimise the use of source data. To date, however, no data quality labels exist.

Data quality and reliability are closely connected. The rise and popularity of smart devices and sensors also create high levels of dependence. For example, while a sensor is able to register certain activities or behaviours, a defect in the sensor will reduce the reliability of that data. How can a consumer defend him or herself if the box built into its car registers a speeding offence that he or she never committed?

2.2 Data storage / access

Cloud

In a digital system, all data produced and collected must be stored somewhere. In the past, data could be stored on internal storage media. However, due to the exponential growth of data and improved connectivity levels, cloud solutions have become essential for data storage.

The cloud seems to have become the beating heart of any digitalising organisation. This is where data, analysis, computing power and accessibility solutions come together under a single, extremely secure roof. The cloud is where data is gathered, processed, and transmitted to other sources. At the same time, standard and customised analyses can be executed, and additional computing power can be added instantly. The revenue model of cloud providers is based not on providing space in the cloud, but rather on providing associated services. These include standard analyses, extra computing power and, in the near future, possibly cloud computing services. In a digital environment where it may be desirable - or, under future legislation, even compulsory - to share data with third parties, cloud providers can offer data management solutions that enable organisations to monitor and stay in control of incoming and outgoing data flows.

DLT / shared infrastructure[1]

As data becomes commonplace, and the driving force behind digital solutions, organisations will want to share data more widely. Private and public parties will seek each other out in so-called data ecosystems, supported by a shared infrastructure, so that they can easily share data that contributes to a particular process or revenue model.

APIs

APIs are software interfaces that allow various applications to communicate with each other. This enables the transmission of data from one system to another. This technology is not new. In the past, organisations have used it primarily to facilitate interactions between their internal systems. For several years, however, organisations have also been using it to open up their data to third parties, creating opportunities for new types of services. As such, APIs are a tool to make data within one organisation accessible to another for the purpose of developing new services. The concept works both ways: an organisation can use an API solution to attract data, but also to make its data available to external parties.

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1   IAIS Report on Fintech developments in the insurance sector (iaisweb.org)

2.3   Data analysis

The term 'artificial intelligence' is not new and has been around since the mid-twentieth century. In recent years, AI and underlying technologies such as machine learning and deep learning, have seen a tremendous development, due in part to increased computing power, low-cost storage solutions and ever-increasing data flows to feed AI systems. In the next few years we may see insurance products develop from reactive (detection, repair) to proactive (predictive, preventive). Insurers will find opportunities for AI in every process of the insurance distribution chain, for the purpose of optimising those processes in whatever form.

Themes such as ethics and explainability will remain relevant. The use of historical data and modelling techniques will continue to generate issues that demand special attention, such as the chance of extrapolation of historical patterns, bias awareness and the fact that all models are a simplification of reality. Ethical issues play a role in each step of the process (input, throughput, output), resulting directly and indirectly in a continued need for explainability.[2] In collaboration with the Dutch Central Bank (DNB), the AFM already signalled this in 2019 in its exploratory study on the use of AI in the insurance sector.[3]

As organisations have access to an increasing amount of data points of individuals and advanced analysis techniques, the possibilities for micro-level segmentation will increase. Digital environments and techniques to digitalise behaviours in the physical realm (e.g. using sensors, video and photography) are enabling organisations to analyse and monitor the behaviour of individuals. This creates a wealth of opportunities to offer more personalised services and respond to the actual or expected needs of individual customers.

However, to develop and train advanced AI models and keep them up to date, they need constant data input. The question is whether market parties will be able to satisfy the data needs of such AI models in the near future, where it concerns homogeneous processes External parties may be better equipped to supply and maintain such models for use by insurers.

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2   Towards a Standard for Identifying and Managing Bias in Artificial Intelligence
3   AFM and DNB key considerations regarding artificial intelligence in the insurance sector

Edge computing

As with regards to IoT applications, a great deal of processing today takes place in the cloud. However, one disadvantage of the cloud is that it creates a considerable distance between the place where data is created and where it is processed. Cloud centres are positioned in strategic central locations, and data growth is causing pressure on existing networks. As a result, it is becoming almost impossible to transmit all data to a single data centre. One solution is edge computing, an arrangement involving small computing centres that are positioned closer to the data source to speed up processing times.

2.4 Connectivity

Connectivity is a crucial factor in facilitating data sharing. The speed of connectivity should be commensurate with exponential data growth, data volumes and data production and consumption rates. A decade ago, copper and 3G networks still offered sufficient capacity to satisfy the hunger for data. Today, however, fibre and 4G networks are widely used to process the data volumes of the current era.

Satellites

The continuous increase in the number of smart devices and IoT solutions places high demands on the connectivity potential and stability of a network. In recent years, the possibilities to produce, launch and operationalise so-called Low-earth orbit (LEO) satellites have come within the reach of a wider group of players. Car manufacturers in particular, such as Geely and NIO, have identified the potential of having their own satellite connections to support self-driving vehicles.

5G/6G and 7G mobile networks

Mobile communication is characterised by the 3G and 4G networks we use for our smartphones. These networks, and the IoT more generally, are also used by other devices, such as cars. The transition from 3G to 4G in particular added capacity to the network and reduced transmission delays. This has facilitated both faster communication and faster connections. The development of 5G, 6G and 7G networks is continuing this trend. In addition, 6G facilitates integration with satellite networks. Beyond the IoT, analysts predict the development of an 'Internet of Everything' (IoE) uniting 'things', data, people and processes. Edge computing is going to be an integral part of these developments. This integration will include the computer networks (possibly including Quantum), offering possibilities for even faster data processing.

2.5 Digital security

Cyber security and the associated risks affect all levels of the digitalising world. Smart devices are vulnerable to hacks if the software they use is obsolete or defective. Large data environments attract hackers because the data is extremely valuable. There is also a risk of manipulated data, resulting in faulty AI models. The possibilities for hackers to gain access to organisations or their digital environments are endless.

To a certain extent, organisations themselves can control the level of security of their digital environment. However, due to the unlimited connectivity of organisations via digital services, products, software solutions and data environments, some security aspects are beyond their control because they also depend on the cyber security of their cooperation partners. Protection against cyber security risks will remain a key priority not just of cloud providers, but of manufacturers of cars, telephones and other devices.

2.6 Digital skills & legacy

Skills

There is a growing gap between technological innovations on the one hand, and our skills in using those technologies in operational contexts on the other. Established institutions, new entrants, fintechs and BigTechs/IT businesses are all competing fiercely for personnel with the requisite skills. Many players are fishing in the same pond for talented professionals – a phenomenon also seen visoutside the financial sector.

Established players are also facing three other challenges:

1. Maintaining their legacy systems;
2. Integrating tasks after takeovers;
3. Implementing the latest digital developments.

Legacy

Legacy refers to obsolescence in a comparative sense: it does not necessarily concern systems that are half a century old. For example, knowledge about systems can also get lost, possibly as a result, at least in part, of outsourcing and data migration to the cloud. Moving to the cloud does not necessarily change the architecture and structure of the software. While these systems themselves may remain quite effective, they offer little space for the efficient implementation of new functionalities required for – or by – today's digitalisation processes.

It is expected that there will be a shift in the way organisations deal with automation and digitalisation. Trends such as Software as a Service (SaaS) and Platform as a Service (PaaS) will be given more space as they fill a need of many different parties. This could lead to a high level of standardisation of insurance software.

2.7 Conclusion

The main technological trends range from growing data volumes and more powerful analytics to increasing connectivity and security and skills-related issues. The challenge for companies is to acquire the skills and systems they need to be able to apply those technologies. For insurers, these applications are broad. It can range from pricing products to measuring behaviour and expanding distribution. –The next chapter outlines the potential impact of the aforementioned trends on insurers.

03 Impact on the insurance business

The technologies and developments discussed in chapter 2 are going to influence the insurance market. What will be the effects of that, and where should we expect those effects? This chapter describes the ways in which worldwide digitalisation processes and the opportunities they bring can manifest in the insurance sector.

3.1 Process optimisation

Pricing & acceptance

Widespread data usage and smart algorithms enable insurers to offer highly personalised premiums. This means that rather than calculating premiums based on groups of consumers, insurers calculate a customised premium for every individual consumer. The increasing amount of data combined with ever smarter analytics, possibly coupled with behavioural pricing, allow refined risk estimates for individual consumers. Despite the potential benefits, such as reducing high-risk driving behaviour, this may also erode solidarity among consumers and 'force' them to share their data with their insurers.[4] Overall, in an ever more individualised society, a risk estimate at the level of individual consumers might tend to be perceived as fair. The government could provide a safety net for the group of consumers that would have to pay an extremely high premium, comparatively speaking, and become uninsurable as a result.

Personalised pricing can also reflect a person's willingness to pay. For example, the British regulator (FCA) demonstrated that insurers were able to predict whether individual customers were going to switch to another insurer on the contract expiry date. The smaller the chance of such a switch, the higher the premium increase. The customers concerned were functionally illiterate, for example, or had few digital skills. This amounts to a 'loyalty penalty', which has since been banned in the United Kingdom. In the Netherlands, too, this pricing strategy would probably fail the PARP (Product Approval & Review Process) test.

There are also options for further personalisation of insurers' acceptance policies. This is because, for every potentially insurable risk, insurers can make a more detailed estimate of whether they will make a profit or incur a loss on underwriting it. When this report was written, in public-private basic health insurance the underwriting obligation serves to counteract this problem, but for all other products insurers are free to accept or refuse customers as they wish. This could give rise to a situation in which insurers systematically refuse to underwrite unprofitable risks, or only do so at prohibitive premiums. A 'safety net insurer' could be part of the solution. However, if the accessibility of (non-life) insurance were to come under considerable pressure, it could be useful to organise a societal debate about a more encompassing underwriting requirement.

In addition to personalising premiums, insurers could personalise policy conditions. Today, in 2023, every type of insurance comes with its fixed set of policy conditions (e.g. Bronze, Silver and Gold), but by 2033 we may well see policy conditions personalised to individual customer characteristics. A set of insurance policy conditions would then cover several hundreds of variables, which can be adapted to the policy concerned. Far-reaching personalisation of policy conditions would mean that products effectively become incomparable.

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4   The AFM presents points of attention for personalisation of premiums and conditions

The potential disadvantages of these techniques, such as erosion of solidarity, incomparability and impairment of privacy, also have effects on society at large. However, statutory supervision by the AFM, based on the PARP standard, for example, predominantly focuses on individual Dutch institutions and has limited interfaces at systemic level or abroad. Hence, there is also an important task for the government and European bodies in this regard. At the same time, where countering certain effects is beyond its mandate, the AFM does have an important monitoring role for the benefit of social organisations and the government. For example, it remains to be seen whether the current privacy legislation provides sufficient protection against undesirable use of data for personalised pricing, and whether consumers themselves will offer resistance once their privacy is at stake.

Prevention

Insurers strongly rely on prevention, and hence in part on providing assistance, in order to keep insurances affordable. While prevention used to be a supplementary service (in the form of free smoke detectors, for example), today it is a common obligation. Digitalisation enables a more prominent role for prevention. For example, an insurer could decide to only cover cyber-related risks to customers who satisfy a whole list of security requirements. In principle, insurers are free to place as much emphasis on prevention as they see fit. For example, they may decide to only offer disability insurance to people who lead sufficiently healthy lifestyles, as proven by data gathered using trackers on their smartphones. Thanks to the IoT, insurers know more and more about their customers' daily lives. The question remains, however, whether prevention – despite the growing amount of data available – will be sufficient to support the business case for underwriting climate and cyber-related risks.

Prevention may be inherent in the products to be insured themselves. For example, self-driving cars have significantly reduced the chance of costly accidents, so insurance for such cars can become a lot more affordable. This may prove to be a necessary development, as new electric cars are more expensive to repair than old petrol-fuelled cars.

Claims

Insurers have already automated part of their claims settlement processes. Expectations are that by 2033, the majority of claims will be settled by self-learning algorithms. Only in the most complex cases will physical claims handlers assess individual claims from start to finish. In all other cases, humans will only be involved to conduct an extra check when the initial outcome of the algorithm is ambiguous. The speed of the settlement process will strongly increase, and the quality of the data will become all the more important.

In claims settlement, manufacturers that provide insurance products themselves will have a big advantage over traditional insurers. There are two reasons for that. One has to do with the data position: when a car manufacturer launches a model, it knows the prices of replacement parts and is able to monitor vulnerabilities of the car in real time using sensors. It is also familiar with the minor claims which consumers tend not to submit in traditional car insurance to protect their excess or claim-free years, and hence remain hidden from view. The second reason is the benefit of keeping the process in-house. For a bicycle manufacturer, for instance, it is much cheaper to supply a replacement bike than it is for an insurer to buy one. Moreover, a direct replacement is a better deal for consumers than payment of the current value of the bike.

Countervailing power

By using data, insurers become more powerful in terms of pricing, distribution and product development. However, consumers could offer up more countervailing power than they do at present.

For example, consumers could take out life insurance with the advantage of specific knowledge, obtained via advanced genetic health tests. And artificial intelligence tools such as ChatGPT can help them submit highly effective claims, in good faith or otherwise. The question is whether this will reduce the asymmetry of information between the insurer and the consumer or whether the data dominance of insurers will further strengthen their position. It is conceivable that only a part of consumers will use their countervailing power.

Fraud

The use of sensors, data and algorithms will further enhance fraud detection.
Supplementary data will put insurers in a better position to verify the facts underlying a claim. Tools such as lie detection techniques will also help them assess whether the claim is genuine. With this improved ability to detect fraudulent claims, the question is how severe the sanctions should be on a customer who unwittingly submits an incorrect claim (rejection of the claim or unilateral policy cancellation). At the same time, an increased chance of being caught may help to reduce insurance fraud.

3.2 New propositions

3.2.1 Distribution

Automated advice

Today, in 2023, automated advice is still in its infancy, but it may well develop into a widespread phenomenon over the next decade. With automated advice, the algorithm produces an appropriate solution, from simple non-life insurance to complex income protection insurance products. Little will change for consumers as far as the output is concerned: the system generates an advisory report with a recommendation, much like a physical advisor would do. The difference is that now the advisory process itself is automated.

Some consumers will still want to consult a physical advisor. This may apply to specific groups of consumers, but also to specific insurance products. For example, a consumer may be quite happy to receive automated advice about disability insurance, but will prefer a human advisor for advice about mortgages. In view of the need for inclusion, it is important to maintain various distribution channels suited to the needs of individual consumers. For example, not all consumers can be expected to be sufficiently literate to understand and use a module for automated advice.

Via platforms

Flexible workers have more opportunities to take out insurance via a platform.
In these cases, the employer offers an online platform with a range of services for employees, including insurance cover for the hours that they work. Flexible workers who register on the platform can then opt for group insurance.

Embedded insurance

Embedded insurance is a type of insurance distribution, where insurance products are sold through a platform that is related to a particular service or product. Today, in 2023, this type of insurance usually begins on the date of purchase of the service or product. The insurance can be embedded in the product itself (e.g. purchase protection insurance for products paid by credit card), or in a platform on which the product is sold (hotel comparison websites, concert tickets, mobility services). In some cases it is not the individual or the user, but theervicee provider's service that is insured. The term of embedded insurance may be linked to the underlying product (such as a trip), but regular insurance policies may also be embedded.

By 2033, embedded insurance can extend from the purchase of a product to the full lifespan of a product. This means that consumers will be able to take out embedded insurance everywhere – on a website, in an app or in a store. Today this is still very rare. The process can still start upon the purchase of a product (as in the case of cancellation insurance upon the purchase of a concert ticket), but it can cover, in theory, the full life of the insured item. When a consumer finds a mechanic online to repair his fridge, he can then be offered guarantee insurance for the period following the repair.

The embedded sale of insurance policies through platforms (such as hotel comparison websites) is conducive to personalised pricing. After all, in such cases insurers tend to have more information about the customer (type of journey, type of product, willingness to pay) than when selling generic products. They can use all this information to arrive at a personalised price, both in an actuarial sense and to calculate the profit margin. At the same time, the customer might expect personalised policy conditions as the insurer knows more about him.

Embedded products

Embedded products can be traditional products (such as travel insurance), but they can also be micro-insurance products. An example of the latter is accident insurance cover during the rental period of a bicycle. This situation involves frequent payments of low premiums. The question is whether micro-insurance, as it becomes more widespread, will overlap with traditional products and, if so, whether consumers will be aware of that. Alternatively, existing traditional products may disappear as consumers increasingly take out high-precision insurance cover for what they actually use. For example, separate insurance per car journey, per home device or covering separate parts of a holiday. The relationship between the customer and the provider of an embedded product is likely to focus on that one product only, reducing the importance of its relationship with the customer and therefore the information position of the underlying provider

Embedded products can be simple, but also complex. Embedded distribution applies not only to non-life (micro-)insurance, but also to other products such as term life insurance or disability insurance policies (strictly for the hours worked or otherwise). Where complex products are embedded, they are likely to be sold via automated advice or the execution-only channel; after all, sales via a website is unlikely to involve a physical advisor. This will make it more likely for consumers to purchase complex insurance products without seeking advice – which they rarely do now, in 2023.

Embedded distribution

Embedded insurance may put an end to the traditional distribution process of insurance products. Once consumers are offered insurance products directly upon the purchase of a particular product or service, or during its full service life, we will see a sharp decline in conventional insurance purchasing (via an insurer, intermediary or comparison website). Indeed, the question is whether any market share will remain for conventional distribution channels once micro-insurance has replaced traditional channels.

Embedded insurance could potentially become an important distribution channel for foreign providers, accelerating cross-border services. Via an underwriting agent or otherwise, it is quite easy for foreign providers to gain access to a virtually unlimited number of embedded distribution partners.

By making it so easy for consumers to take out the insurance, the 'embedded' concept may involve a certain degree of product pushing. This applies in particular when the techniques to onboard and attract customers and the digital selection environment also encourage them to purchase an insurance product. Customers may also get confused as to what is and is not insured, with the risk of taking out insufficient or double insurance cover.

At the same time, embedded insurance could increase the accessibility of insurance products that are currently relatively uncommon. For example, term life insurance currently receives less attention outside the context of mortgage advice. Embedded insurance could help to draw attention to such products at multiple moments and among a wider target group. This could potentially increase the insurance rate for those products.

Digitalisation will strongly drive the development of cross-border services. This involves the risk of creating an unequal playing field due to the existence of different legal standards, or differences in the implementation of the same legal standard, within Europe. In addition, supervisory authorities risk losing track of which institution is responsible for what (insurer in country A, underwriting agent in country B, intermediary in country C).

This will increase the importance of a level playing field within Europe. Supervisors will also have to maintain an overview (at the European level) of which parties are operating where, to ensure a clear (European) picture of the various responsibilities: which parties are responsible for product development, who are the distributing licensees? After all, intervention in the event of abuses is only possible if the parties and supervisors responsible have been identified.

3.2.2 Products

Time and location-specific

Insurances will increasingly have a real-time character, which means they be limited to specific times and locations. For example, flexible workers can activate their liability insurance when they start work, and travel insurance starts the moment the traveller crosses the border, possibly with differentiated levels of cover per country.

Actual behaviour

One aspect of the developments concerning pricing and prevention is the possibility to measure the behaviour of insured persons. Well-known examples in 2023 are measurement of driving behaviour (with premium discounts for risk-averse drivers) and of lifestyle (with premium discounts for insured persons with a healthy lifestyle). Insurers can measure a potentially endless range of behavioural data (using smartphone tracking data, travel data, data from devices connected to the IoT) and include this in their pricing. As more insurers offer this technique, they will be more

inclined to make it compulsory because those that do not apply it are more likely to incur onerous risks. This could result in exclusion of customers. At the same time, behavioural pricing can help to ensure that risks which are difficult (taxi drivers) or expensive (cyber-relateid risks) to insure remain affordable. Consumers continuously receive feedback on their driving style, lifestyle or level of IT security.

In theory, any type of customer data can be used as a basis for insurance. For instance, in the United States a concept known as Human API enables consumers to share all their medical data (patient information file, hospital treatment data, pharmacy data, laboratory data) directly with the insurer. The insurer then uses that data to produce a customised policy. It is up to the supervisors to monitor these developments and decide at the level of individual institutions what is permitted. The question of what we consider desirable or undesirable as a society should be the subject of a broader public debate.

Parametric insurance

In this type of insurance, the insurer pays out when a specific threshold value is reached. One example is the festival director who takes out insurance against severe weather during the event. In such a case, severe weather is defined in advance, for example as a certain amount of precipitation at a specific location. As soon as the threshold value is reached, the insurer will pay a fixed sum. Another example in a commercial context is the water level of a river as a marine insurance criterion.

The more data and models available to an insurer, the greater the possibilities of parametric insurance. As such, digitalisation is a driver of parametric insurance. This type of insurance is often associated with weather and climate-related risks, where data usage helps to improve forecasts and predict climate change**.** It is expected, therefore, that the share of these products will have risen by 2033. For insurers, parametric insurance is a way to insure risks that are difficult to asses in a manageable way; the advantage for customers is that it provides an unambiguous criterion for payment.

Core competence
The core competence of insurers is to estimate risks and the associated risk profiles; the core competence of advisors is to provide high-quality advice. These competences could lose their distinctive force if other players on the market turn out to be more competent than existing insurers and advisors. Due to digitalisation, this threat could come from various directions - from parties that have more data to assess risks, from software manufacturers that are able (and willing) to provide better advice, and from parties closer to the product or the customer. This situation does offer existing parties a number of possible strategies, which are discussed in detail in this section.

3.3 Changing roles

Platform

By 2033, insurers will be able to perform several new roles besides offering insurance products. In a platform role, the insurer fills customer needs by serving customers directly and offering assistance wherever possible. For example, customers have a fundamental need for mobility-related products. They want car insurance, but they also want to avoid hassle when the car breaks down. One example from 2023 is that of a home insurance provider who also offers related services, such as building a green roof and installing solar panels, or handyman services. The insurer can choose to perform those tasks itself or engage another service provider.

To a certain extent, insurers may be forced to take on this platform role to remain profitable. Major risks such as climate and cyber-related risks may prove impossible to insure in a profitable way (given the issues associated with risk estimation and the potential cost of claims) unless the insurer also provides supplementary services with a preventive effect. While actuarial assessments will determine the price of the actual insurance, the supplementary services are likely to be offered at a fixed price.

Independent intermediaries may find it challenging to keep their knowledge up to date. Not only will they have to provide advice about non-life insurance products (e.g. for cyber and climate-related risks) that are more complex than the traditional products; they will also be forced to expand their knowledge about all types of platform services. After all, for consumers this may be decisive.

Supervising the platform role may also prove to be a challenging task. If a supplementary service is not part of the insurance product in a legal sense, it does not have to be included in the advice or advisory rules. Put briefly, the safeguards for customers laid down in the Financial Supervision Act and the IDD strictly concern the financial product. At the same time, those supplementary services could become so extensive that the insurance itself is only a small part of the package sold and consumers select an insurance mainly because of the supplementary services that come with it. The question, then, is what constitutes appropriate advice under the Financial Supervision Act, and how the AFM should supervise this. Supplementary services may also reflect on the insurer's reputation. For example, the AFM cannot supervise a towing service offered by an insurer (unless that service is part of the PARP), but if that service fails repeatedly, consumers' confidence in the insurer will decline.

Ecosystem

In addition to the platform role, by 2033 insurers may be able to provide an entire ecosystem. In that case, in addition to providing a platform with services, the insurer offers a full assistance package for its customers. One example is an insurer taking on a coordinating role and developing an ecosystem around themes such as vitality or housing.

The drive towards sustainability is another potential catalyst for insurers to assume this role. In addition to providing insurance for solar panels, the insurer has them installed by certified installers, arranges maintenance and also helps the customer to insulate his house. While this calls for a radical reconsideration of the traditional business model, it ties in to the expertise that insurers already have.

Insurers in this role will have to adopt a much broader pricing perspective than in the traditional actuarial sense, because they offer a much wider range of services. After all, consumers will have to pay for old-age services or measures to make their homes more sustainable. However, expectations are that insurers, thanks to their experience with insurance pricing, will also be perfectly capable of pricing their ecosystems.

Insurers could also become part of an ecosystem of non-financials, such as BigTechs. In this scenario, the question is whether the insurers will remain sufficiently in control of their pricing strategy and conditions.

Supervising ecosystems is even more challenging than supervising platforms. The supplementary services come with challenges in terms of compliance with the advisory rules under the Financial Supervision Act. They are beyond the scope of AFM supervision under the current legal standards. In an ecosystem, supplementary services play an even more dominant role than on a platform.

3.4 New dependencies

IoT and IoE

Expectations are that by 2033, the IoT and IoE will play an essential role in various insurance products. They will form the basis for behavioural pricing and will also be crucial for preventive measures, for example in cyber-related insurance. As a result, insurers will become increasingly dependent on the providers that store and process this data, such as cloud providers.

Data providers

In their use of data, insurers could become increasingly dependent on data providers. In the mobility segment, car manufacturers are a major factor. Are they prepared to share their data, or are they providing insurance products themselves? In addition, the importance of external parties will increase – for example, parties that build profiles based on postal code and house number data, or external databases with home-related data. External providers will also play an important role in prevention. In addition, source data from the government and other public or semi-public bodies (Chamber of Commerce, Land Register) will continue to be available unchanged.

3.5 Other developments in distribution and products

Insurance distribution chain

There is a chance that the insurance distribution chain will be further fragmented under the influence of parties not subject to our supervision. This process may run parallel with insurers performing platform or ecosystem roles. In all steps of the financial service chain, responsibility may de facto rest with external parties, such as the builders of advisory software or developers of fraud detection tools. The underlying question for the AFM is how it intends to deal with the growing influence of parties beyond the scope of its supervision, such as service providers or product developers.

At the same time, further integration of the insurance distribution chain is also possible. The first scenario is that more manufacturers become insurers themselves, effectively turning into producer-insurer businesses. The second scenario is that software parties, such as the BigTechs, take over practically the entire distribution chain but leave final responsibility and the licensing obligation to another party. This would keep them beyond the scope of supervision. Both scenarios would reduce fragmentation of the distribution chain. In both cases, the focus of supervision would be on the licence holder – which would outsource a substantial part of its tasks in the second scenario.

Reinsurers

The role of reinsurers is expected to increase, due to their expertise and innovative strength in the field of data and data analysis. For example, reinsurers can invest in InsurTechs, an arrangement in which the latter would benefit from the reinsurers' actuarial expertise. In turn, reinsurers may partner with parties other than insurers (such as car manufacturers or large companies) and may have more financial strength to invest in data usage. This would also reduce the number of links in the insurance distribution chain, with a positive effect on margins.

Through partnerships, the data and algorithms of reinsurers can be used for practically all aspects described in this report, such as IoT analyses, pricing, claims settlement and fraud detection. In this way, reinsurers can become more influential in many respects than the insurers themselves - without consumers being aware of it.

Cyber-related risks

By 2033, increasing digitalisation is expected to create a considerable need among consumers and businesses for insurance products that cover new, cyber-related risks. The number of cyber and ransomware attacks will increase, targeting both consumers and businesses and their suppliers. Due to the potentially huge consequential damage, for consumers (and businesses) these types of insurance may become as important as health insurance. Incidentally, cyber attacks could also target the IoT networks used for insurance pricing purposes. This is why prevention may prove crucial to keep these risks insurable.

3.6 Conclusion

Technological developments can potentially impact the entire insurance distribution chain across the board, including processes, distribution and products, and therefore the entire role of insurers. For consumers, the consequences of personalised pricing can be considerable, when an individual insurance profile or high spending potential results in a much higher premium. Consumer behaviour, prevention or parametric measurement may contribute to further personalisation of product prices in a more fragmented distribution chain. Automated advice and embedded distribution potentially have a strongly disruptive effect on the existing distribution channels. Finally, insurers can expand their role as a service provider into that of a platform or as (a link in) an ecosystem. The next chapter discusses the role of European regulations in the developments outlined above.

Impact of EU policies

Digitalisation - including data policy - is a key focus of European policymakers. As regards data policy, the objective is to create an internal market for data by 2030. This reflects policymakers' commitment to creating opportunities for innovation and increasing the EU's economic strength. There is also attention for a level playing field to ensure that the so-called gatekeepers are regulated and smaller parties are given fair access to the market. Of course the policy proposals are formulated with due regard for the risks associated with digitalisation.

To improve our understanding of the effects of EU policy on the financial sector and the insurance sector, we need to consider horizontal regulation as well as sector-specific regulation. Horizontal regulation is regulation with a cross-sectoral scope. The following sections discuss the most important regulations to be rolled out and implemented over the next few years. The regulations included separately in the figure are part of the EU strategies for digitalisations and data. These specific regulations are relevant because digitalisation and data have the effect of blurring the boundaries between sectors. For example, payment data are also interesting for market parties outside the financial sector, and the financial sector itself has various uses for IoT data. Other examples of such blurring boundaries are the provision of financial products through large online platforms and using a mobile phone to make payments.

4.1 Horizontal policy developments

Generally speaking, the various frameworks determine, among other things:
- The transparency of services and the fight against illegal content under the Digital Services Act (DSA);
- The position of gatekeepers via the Digital Markets Act (DMA) and the use of IoT data under the Data Act (DA); and
- The use of artificial intelligence, via regulation of high-risk applications under the Artificial Intelligence Act (AIA).
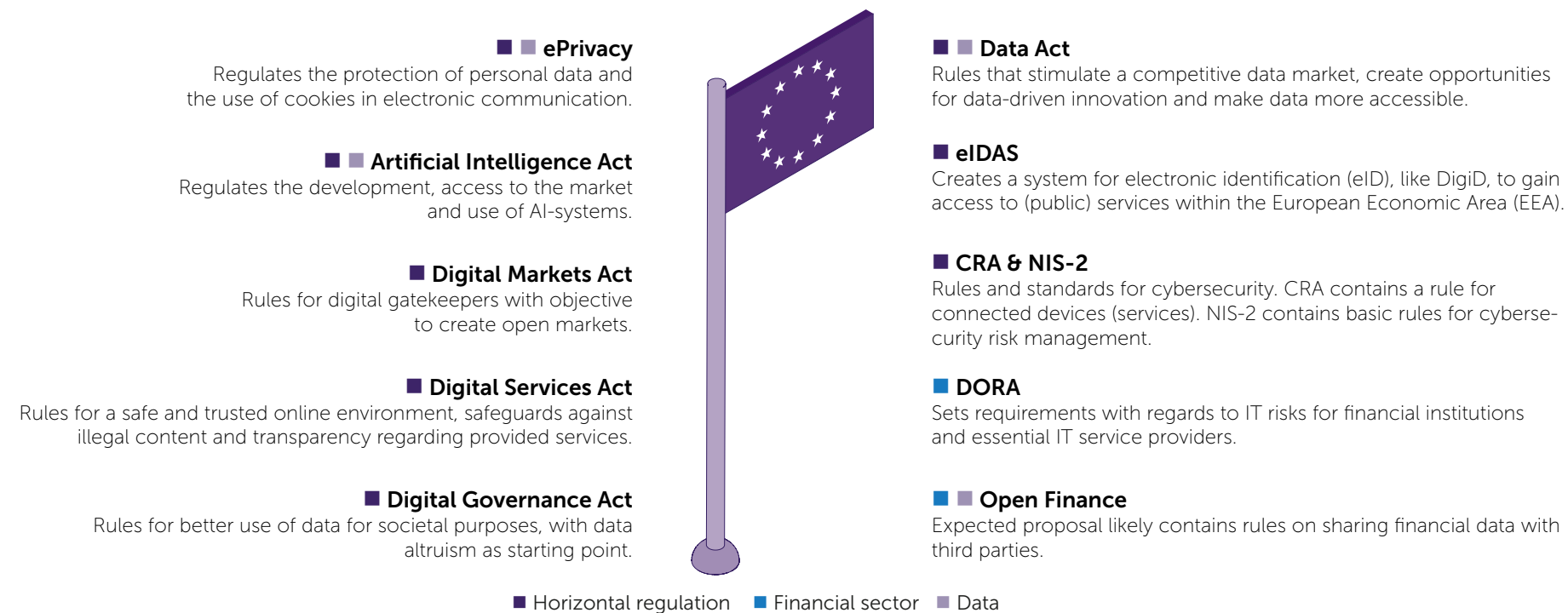
These regulations will have an impact on market dynamics and the level playing field for the sector. BigTechs will have to comply with ever more stringent obligations, while attempts will be made to give smaller players better opportunities to enter the market and benefit from the competencies of large players.

In addition, the government is keen to strengthen and protect the position of consumers. The instruments it uses to achieve that include transparency, a ban on the use of 'dark patterns' and, in exceptional cases, drastic intervention by potentially blocking access for large parties to specific data sets (to avoid data concentration and market dominance). The ban on the use of so-called dark patterns via the interface of online platforms is a ban on deceptive tricks that persuade users to make choices they did not intend to make (a pre-ticked approval box, for instance, or a hidden opt-out button). The fight against dark patterns has been a focus of financial supervisors for some time, because their use is evidently not in the interest of customers

Towards 2033, the first effects of regulation in this field will become increasingly visible. It will be interesting to see to what extent regulation contributes to innovation and participation of small and medium-sized businesses in the digital internal EU market.

Figure 2. Overview EU-policy data and digitalisation

ePrivacy
Regulates the protection of personal data and the use of cookies in electronic communication.

Artificial Intelligence Act
Regulates the development, access to the market and use of AI-systems.

Digital Markets Act
Rules for digital gatekeepers with objective to create open markets.

Digital Services Act
Rules for a safe and trusted online environment, safeguards against illegal content and transparency regarding provided services.

Digital Governance Act
Rules for better use of data for societal purposes, with data altruism as starting point.

Data Act
Rules that stimulate a competitive data market, create opportunities for data-driven innovation and make data more accessible.

eIDAS
Creates a system for electronic identification (eID), like DigiD, to gain access to (public) services within the European Economic Area (EEA).

CRA & NIS-2
Rules and standards for cybersecurity. CRA contains a rule for connected devices (services). NIS-2 contains basic rules for cybersecurity risk management.

DORA
Sets requirements with regards to IT risks for financial institutions and essential IT service providers.

Open Finance
Expected proposal likely contains rules on sharing financial data with third parties.

■ Horizontal regulation ■ Financial sector ■ Data

4.2 The European Commission's digital and data strategy

The European Commission's digital and data strategy includes several ambitious regulatory programmes. Through this strategy, the EC aims to make optimum use of the potential offered by data. For example, the EC has formulated an ambition to create a single data market by 2030. The data strategy also includes proposals such as the Data Governance Act (DGA) and the Data Act (DA).

The DGA promotes data sharing for societal purposes and creates a basis for providers of data-related intermediary services; the DA will enable the sharing of data generated by connected products (IoT data) and sets common requirements for all data and data sharing regulations, for example about fees, consent and dispute settlement. The data strategy is part of the EU's digital strategy, which includes initiatives such as the Digital Services Act (DSA), the Digital Markets Act (DMA) and the regulation laying down rules for applications based on artificial intelligence (AIA). That regulation sets rules for AI applications, and specifically for high-risk applications. It may also affect insurers that use AI for life insurance and health insurance products. The framework allows for the possibility to expand the list of high-risk applications. This means that in the future it may also include other AI applications within the financial system.

Two other policy initiatives in the field of digitalisation, the DSA and the DMA, mainly (though not exclusively) concern large platforms known as gatekeepers. The DSA contains rules that are intended to create a safer digital space in which the fundamental rights of all users of digital services are protected. The DMA contains rules that are intended to create a level playing field in order to promote innovation, growth and competitive strength, both within the European market and worldwide. Both initiatives will influence the mutual relationships of the market parties involved (for example, the position of BigTechs relative to insurers).

One example is the interface between regulations such as the DSA and DMA, and new distribution concepts such as embedded insurance. Not only will those concepts be subject to financial regulation; the DSA and DMA themselves may also lay down requirements concerning the interactions between the platform and its customers and between the platform and the insurer.

4.3 Developments in sectoral policy

The next few years will see the finalisation of specific regulations for the financial sector, such as DORA and Open Finance. DORA is currently being worked out and implemented. In contrast, Open Finance is yet to be launched by the European Commission by means of a proposal. That proposal is also expected to have consequences for the insurance sector, where it is also known as Open Insurance.

Following Open Banking, Open Insurance has attracted a great deal of attention in the world of insurance. While insurers will probably be increasingly required to make data available to third parties, they will also improve their ability to obtain data from other parties (such as IoT data). In this sense, Open Finance overlaps with the broader range of the EC's horizontal regulation initiatives, as announced in the EU's data strategy.

4.4 Behavioural supervision in the EU & cross-border issues

The increasing possibilities for cross-border services underline the importance of a high priority for behavioural supervision in all European countries. Policy in this domain includes a clear focus on consumer protection; practical implementation has been entrusted to the various supervisory authorities within the EU. Differences in the implementation of this policy increase the vulnerability of consumers and can cause pressure on customer interests, insurability and solidarity. Problems and scandals at the national level can encourage the authorities in that country to tighten behavioural supervision. EIOPA[5] recognises the importance of coordination, supervisory convergence and the development of instruments to facilitate behavioural supervision and reduce any cross-border issues in the period of transition ahead of us. It seems unlikely that the implementation of behavioural supervision will move from the national to the European level within the next decade and follow the example of European prudential banking supervision through the Single Supervisory Mechanism.

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5   EIOPA Strategy 2023-2026, p.6**.**

Up until a few years ago, there was a clear dividing line between sectors and their supervisors, with DNB and the AFM acting as primary supervisors for the financial sector. Current financial legislation cannot possibly cover all the challenges arising from the digitalising world – as is clearly reflected in the series of regulatory initiatives from Europe. This is why financial businesses should expect to see changes in their relationships, or build entirely new relationships, with supervisors.

4.5   Conclusion

The EU is trying to carefully manage technological developments using both horizontal and sector-specific regulation. While regulations impose new obligations, they also offer new opportunities (such as data sharing), with the ultimate purpose of strengthening the position of consumers. Cross-border services can result in vulnerabilities in the absence of uniform supervisory practices in the various Member States and effective harmonisation at the European level. The next chapter discusses the potential impact of the developments described above on the AFM.

The fundamental need behind insurance is to reduce the financial impact of an undesirable outcome. An insurance product (contract) can meet this need. This need will still exist in 2033. This chapter examines the extent to which the AFM's reference points will change and the extent to which a digitalising world will impact supervision.

5.1 The role of the AFM in the system

The existing reference points for the AFM around processes on the one hand and outcomes on the other will remain unchanged. For example, this applies to the PARP and the customer interest first principle (processes) and to the provision of information and the advisory rules (outcomes). These legal safeguards will remain relevant in the future. However, certain developments will have to be taken into account in determining the effectiveness of the AFM going forward:

- The extent to which processes are outsourced to institutions beyond the scope of the AFM's supervision;
- The role of other national supervisory authorities in a digitalising world, and any resulting tensions or blockades with respect to the reference points mentioned above; and
- The extent to which the risks associated with those reference points are visible to the AFM in a digitalising world.

5.2 Public interest, risks and supervisory approach

The AFM is the designated authority for behavioural supervision in the insurance sector. The AFM is designed to examine and understand the extent to which financial well-being and a level playing field are guaranteed. In 2033, the AFM will still put

the customer's interests first by requiring appropriate (duty of care) safeguards for consumers. In doing so, the AFM strives to achieve the following outcomes.

Individual financial well-being
1   The customer understands what their insurance needs are
2   The customer understands what the insurance product is and what it is not, and what it covers and what it does not cover (e.g. transparency requirements)
3   The insurance product is suitable for the customer's need (e.g. advice, no under- or over-insurance)
4   The insurance product is of good quality (cost-efficient, useful, safe and simple)
5   All commercial activity is in accordance with the policy conditions (management)

Collective financial well-being
6   All customer groups are able to cover their insurance needs (available, accessible and affordable)

Level playing field
7   Insurances are offered and distributed within a level playing field (also within Europe as a whole), as envisaged by the legislator

The supervisory approach in 2033

The question is how the AFM's supervision will develop in a digitalising world and evolving insurance context. Below we highlight a number of specific developments and show their potential effects on the risk based supervisory approach. In the text box we explain what we mean by 'risk-based in this context, and describe the considerations relevant to the various alternative approaches.

Risk-driven supervision and variants: outcome-oriented and systemic control

The AFM follows a risk based supervision model. Risks in this context are all circumstances, developments and behaviours that impede the realisation of the desired outcomes. It is not always possible for the AFM to monitor, examine and tackle every issue. This is why the AFM will have to make risk based choices. These are choices based on (the interpretation of) information about where the principal risks occur and how they should be supervised.

Basically, there are two methods for monitoring and examining the development of risks:

Supervision variant A: Find out whether individual outcomes are good, for example by analysing insurance products or analysing files for the appropriateness of advice.

Supervision variant B: Establish the extent to which institutions have arranged their business properly and have a system in place that leads to good outcomes. For example, by testing the product development process or chain management.

If you do A and the outcomes are good, there is no real reason to do B. A supervisor should apply A if it is able to monitor the quality of outcomes relatively easily. If you identify systematic shortcomings in an institution or an insurance product, you investigate the issue in detail to understand the causes.

If you do B and everything appears to be in order, you do not need to do much of A. You do B if it is relatively easy to test the quality of control measures and if the test result says a lot about the quality of all outcomes (good control = good outcomes).

Current supervision is a combination of elements from both A and B. This is because 1) we have no relatively easy way to monitor the quality of all outcomes, 2) we have no relatively easy way to test the quality of controls at all institutions, 3) what might appear to be effective control does not always produce good outcomes, and 4) our capacity is scarce. Supervision becomes more challenging as numbers, heterogeneity and subjectivity increase.

There is also a supervision variant C. In this case, the AFM's interventions are purely reactive, in response to complaints and incidents. This variant is beyond the scope of this paper, because it is not in line with the AFM's vision of supervision: timely detection, real understanding and thorough intervention. However, we can always decide to launch a supervisory inspection in response to signals that we receive.

Supervision of processes

Data, automation and algorithms contribute to personalised insurance, automated advice and faster claims settlement; the associated quality controls are organised centrally and there is a strong correlation between the system and its outcomes. Insurances are not products; they are contracts whose exact composition and price can be tailored to fit the customer's specific needs. While the number of possible outcomes increases due to automation and algorithms, public visibility of the contract between the insurer and the insured party is low. This limited visibility is an obstacle in supervision variant A. Also note that personalisation is a centrally managed, automated process. This helps to make the system more predictable and less dependent on the quality of non-central employees. As the files become more and more uniform, the relevance of supervision variant B increases. A similar argument – stronger correlation, in terms of quality, between system and outcomes – also applies to other processes, such as automated advice and claims settlement.

Personalised pricing and policy conditions increase the relevance of variants A and B. On the one hand, the AFM will remain alert to the outcomes of the techniques outlined above, both at the level of individuals and in terms of the effects on society at large. Will individual customers remain insurable, and what are the effects on the principle of solidarity in the insurance system? Although solidarity is beyond the mandate of the AFM it feels the responsibility to inform relevant civil-society organisations and the government, in case of negative developments concerning this topic. On the other hand, supervision of the underlying system will also become more relevant. Will insurers sufficiently remain in control of their own pricing, and how do they incorporate behavioural measurements as part of the product development process?

It is conceivable that if, in claims settlement, algorithms consistently provide outcomes that are unfavourable for the consumer, the role of the AFM will also come under scrutiny. In such cases, the AFM may want to have real-time insight into the claims settlement process, and again the following questions would emerge: are we going to focus on individual files and inputs and outputs (outcomes) or are we going to delve into the system, including algorithm governance issues? Based on current insights, the latter seems the more efficient and realistic option.

Supervising distribution

The quality of automated advice is centrally controlled, predictable and not dependent on the quality of individual advisors. This has advantages and disadvantages. The AFM can choose to inspect individual outcomes (files) or examine the (governance of the) algorithm – which is the more efficient approach. For physical advice this is not an option. The risk – consumers receiving unsuitable advice – will essentially remain the same.

Embedded insurances are part of wider, non-financial propositions. This is why the immediate visibility of these insurance products may be limited. As a result, in these cases outcome-oriented supervision (variant A) is more difficult and, hence, system-oriented supervision (variant B) more relevant. However, the number of distribution outlets (i.e. intermediaries) is enormous. The question is how the AFM should design its risk-driven supervision in this scenario.

In the years ahead, embedded insurance may cause distribution to shift towards all kinds of non-financial platforms and/or ecosystems of BigTechs, for example with information about houses, groceries or travel. In many cases, those platforms would be marked as intermediaries and subject to a licensing obligation, unless this is changed under further European legislation. Today, in 2023, the first examples of embedded insurance have already emerged, but the quantities are still limited. When insurance is distributed through a potentially infinite number of intermediaries (websites, apps, platforms, shops) whose core business is not to provide financial services, the AFM will have to reconsider the way it supervises distribution practices. As numbers and heterogeneity strongly increase, the supervisor will have to find levers to enhance its output with limited capacity.

In this context, supervision intensity is linked to the level and seriousness of the risks. For example, to what extent do we expect the customer interest first principle to come under pressure (see points 1-6 in the above table)? The AFM examines the suitability of the product in view of the customer's need, the complexity of the product, the extent of information asymmetry and the available market incentives. Some examples:
- A highly reputed non-financial can be well positioned to negotiate with an insurer about a carefully designed product that is easy to understand. In such a case, the supervisory risk appears limited.
- However, if more complex insurance products, such as term life insurance, are offered as embedded and execution-only products, the risk, from the perspective of supervision, is greater. Note that this can also be a way to increase the insurance rate.
- Likewise, if the embedded (micro-)insurance is a relatively lucrative source of income for a platform, the transaction is more likely to involve product pushing and the supervisory risk is also greater.

Supervision of platforms and ecosystems

Insurers have more and more possibilities to offer their customers full assistance. As insurers expand their offering, adding activities outside of the traditional range of core services, the share of the insurance component in the overall customer experience will decrease. This could make it more difficult to determine what constitutes as a good outcome for the customer.

An insurer that performs licensed activities, such as providing insurance and insurance advice, can expand its model to include activities that are not subject to a licensing obligation. The latter may range from offering roadside assistance for cars to housing in a nursing home. Indeed, those additional services may be decisive for consumers in the selection process. In such cases, the customer may prefer a proposition due to the appeal of the overall package, even if details of the underlying insurance are actually less suitable and better alternatives are available in the market. Given its statutory mandate, the AFM has traditionally focused on the insurance product and the associated services. The AFM has no framework or authority to include other benefits of a proposition in its assessment. First and foremost, therefore, this is a political issue.

The level playing field

Under the influence of digitalisation, the boundaries between the traditional financial sectors and other sectors will continue to blur in the years ahead. Horizontal regulation initiatives are designed to respond to this development. This gives rise to new questions regarding the definition of a level playing field. It also generates new demands regarding the control of what will increasingly become technology companies (variant B), and highlights the importance of collaboration between supervisory organisations.

With regard to the level playing field (see point 7 in the table on page 24), the supervisor's principal task is to supervise activities subject to a licence and to intervene where products or intermediary services are offered in contravention of the law. This supervisory task is anything but new. A more in-depth policy discussion may ensue on what a level playing field means in the context of on-going digitalisation and its effect of blurring the boundaries between the traditional financial sector and other sectors, such as BigTech. However, in supervision an insurer's actual activities will remain decisive.

The European playing field

As described, Europe is rapidly introducing new regulation initiatives geared to supervision in a digitalising world. While the purpose of those initiatives is to prevent undesirable outcomes (e.g. by therefore safeguarding fundamental European rights or breaking platform monopolies), the actual supervision focuses on governance by institutions and the ability to understand technology (variant B). At the same time, scheduled regulation is less effective in covering the societal effects of digitalisation, such as the potential erosion of solidarity (variant A).

Although cross-border services bring new opportunities it also has a number of potential negative effects. The first examples are becoming visible. For instance, there can be differences in the interpretation and implementation of laws and regulations by the various national supervisory authorities. In addition, the insurance distribution chain may be fragmented across the various countries to such an extent that the (European) supervisors lose sight of who is responsible. An insurer in country A develops a product with an underwriting agent from country B, after which it is sold in country C via a distributor in country D. The risk is that providers and distributors deliberately select the countries where the relevant laws and regulations give most room for open interpretation.

This is why the importance of collaboration with other supervisory authorities will increase. In addition to its natural collaboration with DNB, as a financial supervisor, the AFM will also have to seek collaboration with supervisory authorities in the field of digitalisation, such as the Dutch Data Protection Authority, which is responsible for the supervision of algorithms. Developments such as diversification, ecosystems and platforms underline the need for close alignment and collaboration with the Netherlands Authority for Consumers and Markets. Internal European collaboration, via the European bodies or otherwise, may well turn out to be the key factor in guaranteeing effective supervision in the longer term. It will help to learn from the experiences of other supervisory authorities, share supervision solutions and safeguard a level playing field.

5.3   Conclusion

Supervision will always strive for a balance between testing the level of control and the quality of the outcomes. It seems that over the next decade, the emphasis in supervision on testing the level of control will increase. This is due in particular to the increasing connection between central control and non-central outcomes, and to the limited visibility of those outcomes. Under such conditions, the AFM will have to be able to test the integrity and control of the operations of players that will increasingly become technology businesses. This calls for specific audit and inspection skills.

We want to maintain our focus on the essential factor: the quality of the outcomes. This is the result of market dynamics: the way in which supply and demand are matched, competition between market parties, customers' needs and those parties' ability to meet them with due regard for the relevant safeguards (in terms of duty of care and advice). We need to maintain our ability to carefully asses the findings, and to find the best ways of affecting behavioural change, if necessary, among individual parties or across the sector. As regards societal effects, such as the impact on solidarity, the AFM will continue to monitor them and report its findings to civil-society organisations and the government. Supervisory insights at the level of individual institutions and effects on individual customers also provide crucial input for a broader public and political debate.

The greatest challenges for supervision may well be found in distribution and products. We believe this is probable in view of the technological developments discussed above and their expected impact on insurers. The personalisation of pricing and acceptance will continue and intensify, distribution will be more and more embedded, and advice will be partly or wholly automated. These techniques also have mutually reinforcing effects: following automated advice, an embedded insurance can be sold at a personalised price. As all of this is taking place in a more and more international context, effective control of cross-border issues becomes more important every year. On the one hand, insurers can follow the pricing and distribution techniques and, thanks to embedded insurance, develop more micro-products. On the other hand, insurers (and possibly other financial companies) can develop further into a platform or (a key component of) an ecosystem.

While the essence of supervision will remain largely the same, its implementation will change. The expertise of auditors, economists, actuaries, legal experts, behavioural scientists and data scientists will remain essential for effective behavioural supervision. However, they will have to make sure their expertise reflects the changes in insurance products and their role and distribution. In addition, over the next decade we expect to see a shift in emphasis towards expertise in the fields of technology, data science and the role of IT auditors, compared with 2023.

In this exploratory study, the AFM aimed to present an overview of the impact of technological developments on the insurance sector and its supervision. In the years ahead, we will have to prepare our supervision as much as possible for the developments described above. In addition, we call on insurers and policymakers to consider the possible implications of those developments. For example, what will they mean for policy development? After all, the benefits of those technological developments will only become available to all if we also make a concerted effort to fight the risks that they bring.

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'Occasional Papers' are regular AFM publications on research that is relevant to policymakers, scientists, professionals in business and financial services and, in some cases, the general public. The primary purpose of these studies is to increase our understanding of topics that are relevant to the AFM's supervision. The findings and conclusions do not necessarily reflect the official viewpoints of the AFM, but we do use them to further improve our supervision.

Any questions or comments about this publication?

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