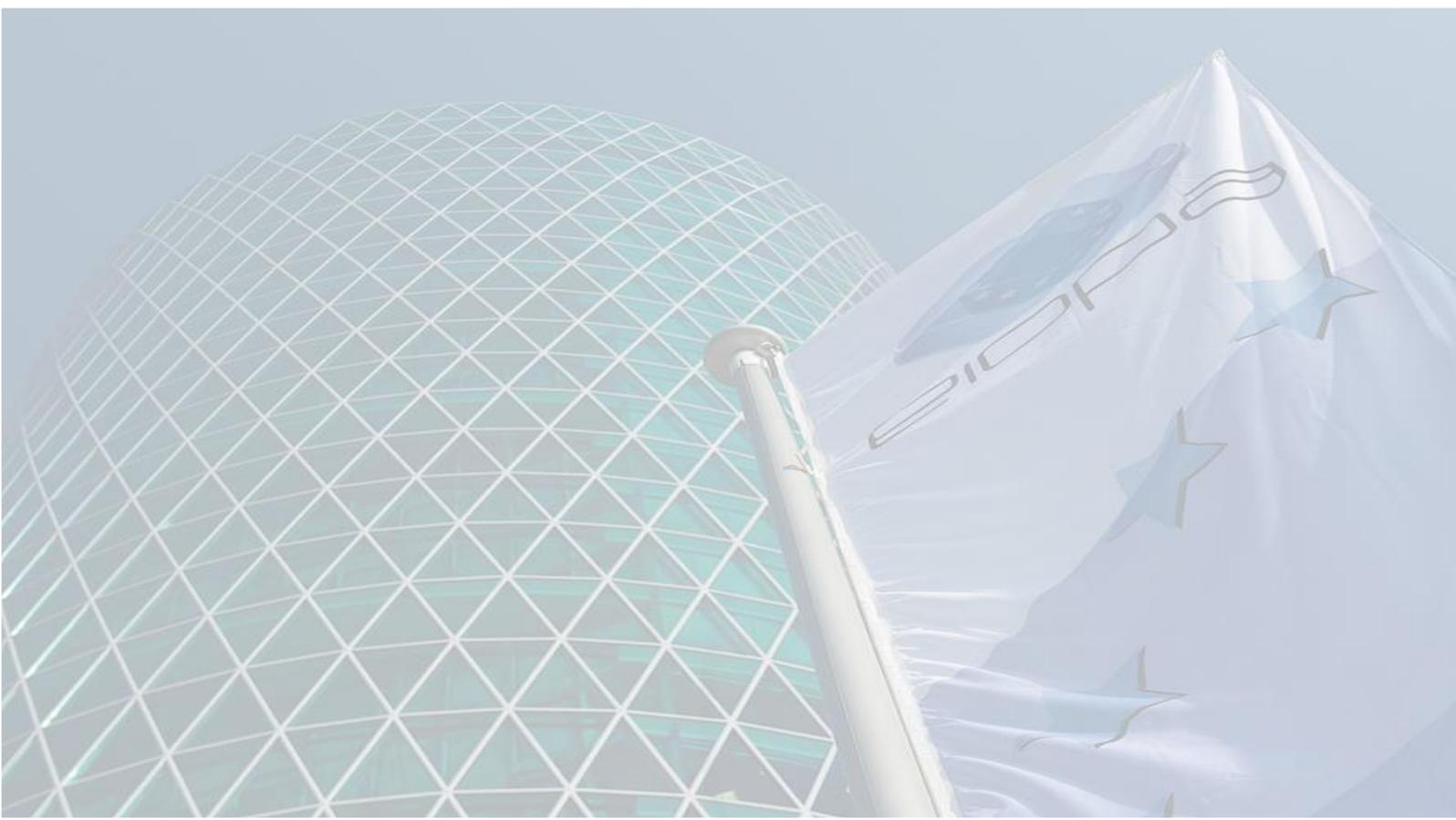


EIOPA InsurTech Roundtable

How technology and data are reshaping the insurance landscape

Summary from the roundtable organised by EIOPA on 28 April 2017



Executive Summary

Following an initial focus on distribution channels, now all stages of the insurance value chain are being impacted by InsurTech¹ and more broadly digitalisation. Insurance products are increasingly capable of being purchased online, including through smartphones that allow such purchases at any time and from any place. Consumers also may benefit from the design of more personalised products and services adapted to their evolving and specific needs. This is driven by the greater availability of data and capacity for processing it, which also enables the development of increasingly efficient underwriting and claims management processes.

In order to harness the benefits of digitalisation, incumbents have embarked on ambitious digital transformation projects and increasingly cooperate with InsurTech start-ups to benefit from their cutting-edge data analysis tools and technology. In the near future, other firms with extensive data analysis capabilities, such as Google, Apple, Facebook or Amazon, may reportedly also enter the insurance market, increasing competition. In this context, a possible fragmentation of the insurance value chain could occur, raising this possible scenario a number of potential supervisory challenges, including the outsourcing of activities and supervision of non-regulated entities.

Moreover, data has always been a highly valuable commodity for the insurance sector; there has long been a pursuit of more granular datasets and predictive models, such that the relevance of so-called Big Data for the sector is no surprise. There are multiple potential benefits linked to the use of Big Data analytics and processes, such as the development of tailored products or more granular risk assessments. There are also a number of issues arising, some of an "ethical" nature, that supervisory authorities need to carefully examine in order to ensure the fair treatment of consumers, taking into account also the latest legislative developments such as the new European General Data Protection Regulation.

Directly linked to the topic of Big Data, Artificial Intelligence is a technology that has a great potential in insurance, particularly in the area of claims management and fraud detection. Blockchain possible use cases in insurance are also reportedly constantly growing and therefore also have a great potential, particularly, at an initial stage, in commercial lines, in the re-insurance business and regarding intra-group transactions. Peer-to-peer (P2P) insurance includes arguably a stronger business innovation than the technological one, mainly digital peer-to-peer platforms, though regulatory and supervisory authorities may need to consider whether the classification of P2P insurance is sufficiently clear, and whether there is also a case for developing specific regulation for P2P insurance.

The above developments have the potential to significantly reshape the insurance landscape in coming years. Regulatory and supervisory authorities have a role to play, by encouraging financial innovations while, at the same time, ensuring a well-functioning consumer protection framework and financial stability. In doing so it is necessary to respect key supervisory principles such as proportionality, market integrity and technological neutrality. Initiatives such as regulatory sandboxes, innovation hubs or public-private partnerships show that it is possible to be innovative in the approach to foster financial innovation.

¹ For the purposes of this paper, InsurTech refers to technology-enabled innovation in insurance, regardless of the nature or size of the provider of the services.

Why EIOPA organised a Roundtable on InsurTech?

InsurTech / digitalisation is of strategic importance for the insurance sector and it is therefore a topic that the European Insurance and Occupational Pensions Authority (EIOPA) is following closely. There are numerous opportunities arising from InsurTech, both for the industry and for consumers, but it has also become increasingly clear that digitalisation is raising a wider range of issues and aspects that deserve the attention from supervisory authorities in close cooperation with stakeholders.

Against this background, on 28 April 2017 EIOPA organised a roundtable to discuss with stakeholders the benefits and risks of digitalisation for the industry and consumers as well as potential obstacles to effective innovation (see agenda of the event on the annex). During the event, representatives from supervisory authorities, consumers, incumbents, start-ups, consultancy firms and IT experts exchanged their different experiences and points of views on the impact of digitalisation in the insurance sector.

The present document represents a summary of the main issues discussed during the roundtable. It is mainly based on the views and opinions expressed by the different stakeholders on the different topics² and therefore it does not necessarily represent the position of EIOPA. EIOPA would like to thank the over 60 participants that attended the meeting and shared their thoughts on this important topic, in particular the guest speakers that kindly presented the topics at the beginning of each session.

In view of the relevance of InsurTech for the insurance sector, and also taking into consideration the speed of change and complexity of some financial innovations, EIOPA plans to organise further stakeholders roundtables in the future. EIOPA's immediate work in the area of InsurTech will focus on Big Data, cyber risks and supervisory approaches to financial innovation, and therefore these are potential topics to be discussed in detail in upcoming roundtables.

² Some topics such as Big Data were directly or indirectly discussed in several sessions; the views expressed by stakeholders throughout the day about one topic have been included in the session specifically addressing that topic.

Session 1: The impact of digital technologies in the insurance value chain

According to Eurostat, over 80% of the European Union's population had access to the internet in 2015, including a smart phone penetration rate of 79%; the internet, Social Media, mobile phones or connected devices are increasingly present in the day-to-day life of European citizens and customer's expectations and demands are constantly evolving. Technological innovations are also impacting all of the stages of the insurance value chain, to a great extent as a result of the digitalisation of data and processes.

The product design and development phase is directly affected by the greater availability of customer data, enabling the development of more personalised products and services adapted to the needs and demands of consumers. This is for instance the case of new on-demand / just-in-time insurance products, where consumers are offered the possibility to purchase tailored insurance policies only for the period without being obliged to subscribe to longer term plans.

Sales and distribution are arguably the stage of the insurance value chain most affected by digitalization to date. In this respect, disintermediated sales through the internet or mobile phone applications benefit from simplified, timely processes and reduced distribution costs. Market players such as comparison websites have also quickly gained a prominent role in the sale and distribution of certain lines of business.

Figure 1: Digitalisation of the insurance value chain



Source: EIOPA InsurTech RoundTable, presentation by Allianz

As far as insurance underwriting and pricing is concerned, the use of Big Data processes in insurance enables more granular segmentation of risks, increases the effectiveness of risk identification, and also allows for pricing that is more risk-sensitive. This facilitates underwriting costs and uncertainty to be reduced, and provides for greater resilience within the underwriting process.

There were divergent views amongst the participants in the roundtable on whether this would expand market availability for some consumers or on the contrary whether consumers with higher risk profiles would face access / exclusion issues (see summary of the Big Data session below for further information). Moreover, enhanced customer

profiling techniques the greater availability of information about consumers was also able to enable the development of new non-risk based pricing practices.

Some of the participants in the roundtable considered that post sale services and claims management were in practice the areas of the value chain where InsurTech has a greater potential. Online services and smartphone applications allow insurance undertakings to offer tailored services 24 hours a day and accessible from any location. InsurTech can also help expedite claims handling.

The use of Artificial Intelligence allow large amounts of structured and unstructured data (e.g. health records) to be processed in a matter of seconds, with a speed that can open up new service possibilities while also drive more efficient and rapid claims processes. Chat boxes powered by Artificial Intelligence assistants also reportedly have a great potential in the area of claims handling and customer service in general; chatbots using messenger applications to communicate and actively engage with customers provide a digital and rapid automated alternative to call centres.

During several sessions of the roundtable reference was made to the possibility of large technological/internet entities to leverage the extensive data that they have available about consumers and their behaviours to enter the insurance business given the trend towards personalised products and services. These companies currently sell this data to insurance undertakings, with some participants highlighting the need avoid data oligopolies and ensure access and data transfers. Ownership of data is therefore a hot topic for the future which is predicted to intensify going forward.

One possible future scenario is the increasing fragmentation of the insurance value chain as a result of new technologies and actors active on the insurance sector. In this respect, insurance undertakings may increasingly outsource operations to IT firms (e.g. data vendors), raising increased questions about liabilities and the supervision of these entities which may not be directly regulated themselves.

Key findings:

- Digitalisation has an impact in all of the stages on the insurance value chain, being the sales and distribution phase the most impacted to date
- Large technological/internet entities firms could enter the insurance business leveraging on their digital and data analytics capabilities
- The fragmentation of the insurance value chain as a result of new technologies and actors is a possible scenario that raises a number of supervisory challenges

Session 2: The advent of new players: InsurTech firms

During the second session it was again noted that while digitalisation has not yet reached the point of truly disrupting the insurance sector, it is nonetheless changing the how consumers approach insurance. Consumers, in particular younger generations (the so-called millennials),³ increasingly demand simple products, give great

³ There is no precise dates for when the "millennial generation" starts or ends, but it is often used to refer to the demographic cohort born after 1980.

importance to (convenient) customer service, and demand permanent ('24/7') access to services and products.

In this context, evidence suggests that many insurance undertakings have started to embark on ambitious digital transformation projects, to upgrade their technology capabilities along the insurance value chain, often in collaboration with InsurTech start-ups so as to draw in fresh ideas, technologies and competences. This can take place via different frameworks, such as the sponsorship of start-up accelerators, digital labs or venture capital funding. Multiple synergies emerge from cooperation, as it can be observed in the figure below.

Figure 2: Cooperation between incumbents and start-ups



Source: EIOPA InsurTech Roundtable, presentation by Finleap

As it can be observed in the figure above, legacy issues reportedly are one of the main impediments for insurance undertakings in fully embracing digitalisation. The scale and complexity of core processes in combination with a reliance on outdated hardware and manual processes, in some cases established since decades, mean that the implementation of new technologies and processes is difficulty and risky. InsurTech start-ups do not face such problems, since they typically have flexible and agile structures only recently established.

Soft skills such as the possession of a tech and data-savvy workforce represent one of the key competitive advantages of InsurTech start-ups, being this particularly relevant at a time when customer's digital data is a highly valued commodity. Yet incumbents possess large customer bases and economies of scale arising from their established balance sheets and existing business. Furthermore, incumbents' experience in underwriting and regulatory expertise is also an important added value, particularly given the detailed regulatory framework under which insurance is conducted.

Given this, start-ups offer to incumbents a powerful means for driving change and organisational transformation. A clear example can be found in the reinsurance business; reinsurance undertakings' partnerships with start-ups not only offer them new innovative solutions and capabilities but they are bringing them closer than ever to the end customer. However incumbents and start-ups are not only partners but also often compete.

In this regard some of the participants considered that regulatory authorities must ensure a level playing field and that the same rules apply to the same risks, following an activity-based approach. Others underlined that the principle of proportionality should prevail when dealing with Insurtech start-ups, though there was less clarity on what this means in practice. Some questioned whether the current rules need some

adjustments in order to remove barriers to financial innovation, or adaptation to the new business models which may carry different risks.

Finally, it was noted that InsurTech start-ups may have relevance for supervisory authorities themselves, to leverage their data analytical skills to improve the efficiency of regulatory and supervisory processes. In this regard, the example of the Bank of England was mentioned, which has recently launched its own Fintech Accelerator to work in partnership with firms working with new technologies to explore how FinTech innovations such as Big Data analytics or Artificial Intelligence could be used in the supervisors' day-to-day work.⁴

Key findings:

- Insurtech firms / start-ups are increasingly present in insurance, very frequently via cooperation agreements with established insurers
- There needs to be a balance between the principle of proportionality and ensuring a level playing field (same risks, same rules)
- Supervisory authorities may increasingly leverage the data analytical expertise of start-ups for supervisory processes

Break-out session 1: Big Data and the Internet of Things

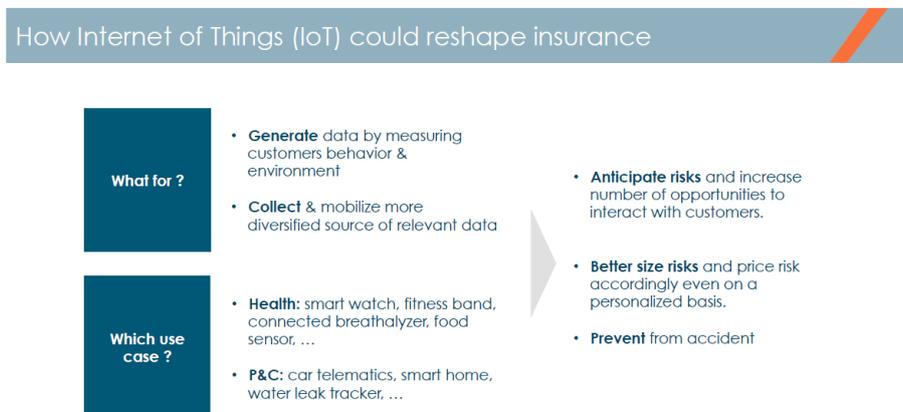
The topic of Big Data⁵ was directly or indirectly addressed in most of the sessions of the roundtable, which shows its general relevance for the sector. Indeed, for insurance undertakings, data processing has historically been at the very core of their business. Data has always been collected and processed to inform underwriting decisions, to price policies, to evaluate and settle policyholders' claims and benefits, as well as to detect and prevent fraud. There has long been a pursuit of more granular datasets and predictive models, such that the relevance of Big Data for the sector is no surprise.

The ways in which data is generated, collected, stored, processed and used are increasing at unprecedented rates due to the increasing use of the internet, social media and smartphones. In recent years the insurance sector has also seen the emergence of products linked to the telematics / connected devices, in particular in motor insurance, but also in household and health insurance.

⁴ Bank of England's FinTech Accelerator [[Link](#)]

⁵ For the purpose of this document, the term Big Data refers to large amounts of different types of data produced with high velocity from a high number of various types of sources, processed using powerful IT tools, such as powerful processors, software and algorithms (definition used in the European Commission's 2014 Communication "Towards a thriving data-driven economy").

Figure 3: Big Data and the Internet of Things



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Source: EIOPA InsurTech Roundtable, presentation by AXA Strategic Ventures

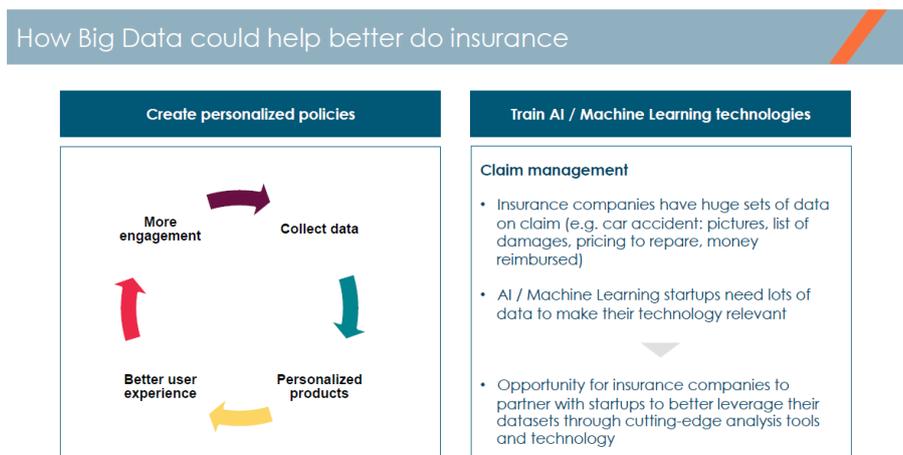
In some jurisdictions such as in Italy, black-boxes tracking the driving behaviour and environment (e.g. geolocation) of consumers became an integral part of approximately 15% of the motor insurance contracts underwritten in 2015. The penetration of telematics is expected to grow in the coming years linked to the increasing penetration of connected cars (circa 75% of the new cars are expected to be connected cars in the UK by 2020, and 100% by 2026) as well as potential for automated vehicles. Regarding the latter, however, fundamental questions remain, such as who should bear the liability in case of an accident - i.e. the driver or the manufacturer of the automated car.

Smart homes incorporating devices such as water leakage trackers or smoke detectors are also used by some insurance undertakings to price household insurance. Some jurisdictions have also seen the emergence of health insurance products linked to wearable devices tracking personal information such as variations in blood pressure, number of steps walked, calories consumption, geolocation, environment etc. and using this information to price and/or develop insurance products.

The processing of structured and unstructured information through Big Data / Artificial Intelligence / Machine Learning⁶ processes enables more accurate prediction of risks and events, increases the effectiveness of risk segmentation, and allows more risk-based pricing, even on a personalised basis. Big Data and telematics allows the development of more personalized products and services adapted to the customers' needs and characteristics (e.g. on-demand / just-in-time insurance products referred above). Moreover, by providing monetary incentives for safe driving behaviours or healthy lifestyles they could reportedly also help prevent accidents and reduce real-world risks to everyone's benefit.

⁶ The delineation between these terms is not always clear; there is no official definition of these terms and the differences between one and another are often blurred. The definition of the term Big Data is provided in the previous page, and the delineation between robotics and artificial intelligence is analysed in the break-out session 4.

Figure 4: Big Data and the Internet of Things



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Source: EIOPA InsurTech Roundtable, presentation by AXA Strategic Ventures

Roundtable participants debated whether Big Data processes would lead to inclusion or exclusion of consumers in insurance.

On the one hand, young drivers installing telematics devices in their vehicles reportedly often pay lower premiums. Big Data processes have also reportedly increased access to health insurance coverage for individuals with diabetes. On the other hand, personalisation of products inhibits comparison of products. Moreover, in competitive markets, consumers with a higher risk profile may face access issues / exclusion as a result of enhanced risk assessments. This issue is particularly sensitive from an ethical / fair treatment perspective, including where information is being used to price risks that does not reflect the behaviour or choices of the individual. Ethical issues also arise in the case of compulsory insurance, where such individuals have no choice but may face high prices.

Such considerations are behind existing bans on the use of certain information such as genetics data for insurance underwriting in health and life insurance in several EU Member States. However, consumers may increasingly – through their own access to better information from such data -- make choices themselves that undermine the effectiveness of risk pooling by insurance undertakings. Exclusion issues have also manifested themselves, although still at a reduced scale, in other lines of business such as household insurance. In this respect, in 2016 the UK Government created Flood Re to ensure the availability and affordability of household insurance for people who live in areas highly exposed to flooding.

Some participants highlighted the relevance of the upcoming General Data Protection Regulation (GDPR) for the topic of Big Data, and considered that, also taking into account existing sectorial legislation (e.g. IDD's requirement to treat customers fairly and POG Guidelines or Solvency II's requirement to establish sound internal mechanism and effective procedures of risk assessments), no further rules were needed in this respect. Other participants suggested that it would be convenient to have some guidance on how the principles outlined in the GDPR should be specifically implemented in the insurance sector.

Finally, participants in the break-out session agreed that insurance undertakings (both incumbents and start-ups) need to actively engage with consumers and transparently

inform them about how their data is used and for what purposes in order to gain their trust to share their personal data with them.

Key findings:

- Big Data enables the development of more personalised products and services and improves the accuracy of risks assessments
- Big Data may improve the availability of insurance for some consumers, but consumers with higher risks profiles could also face exclusion issues
- Ethical and fairness questions may arise regarding the use of certain types of personal information

Break-out session 2: Blockchain and smart contracts

A Blockchain is a type of distributed ledger technology. It is characterised as a digital, chronologically updated, distributed and cryptographically sealed ledger of transactions. Blockchain technology could have the potential to significantly disrupt the financial services sector (and other sectors as well), as it might remove some "middle men" as well as by reducing data redundancy, given that all the data would be stored in single distributed database.

Blockchain technology is still developing and a number of different approaches are being considered. A fundamental distinction exists between "public Blockchains", where anybody can join the network (this is the approach followed with the virtual currency Bitcoin), and "private Blockchains", where access is restricted to known participants, who are the only ones able to read and write the information available in the ledger.

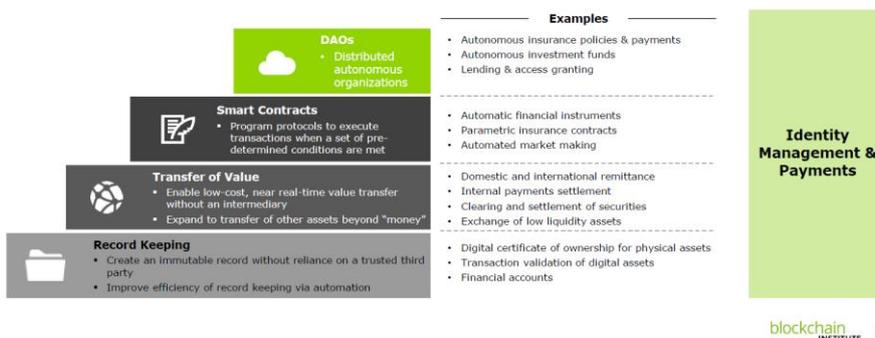
Reported use cases in insurance could include record keeping (e.g. digital certificate of ownership for physical assets), transfer value (e.g. clearing and settlement of securities) or peer-to-peer insurance.

Blockchain could also be used to underpin smart contracts, which encode actions (in effect, contractual clauses) that are automatically executed once a determined event takes place. Smart contracts could be used in catastrophe bonds. For instance, where there is a hurricane in a certain location, the smart contract could pay out automatically without the need for formally submitting a claim. Smart contracts could also be used in travel insurance. Here, if a flight is cancelled or delayed, a payment would be automatically made to the customer. Smart contracts, however, still need some clarification about their legal value and the "payment" presents some issues as it is still mostly in cyber-currencies. The figure below shows additional potential uses of Blockchain in insurance.

Figure 5 - Blockchain use cases

Blockchain Use Cases

The number of application areas and use cases is growing on a daily basis – some key categories emerge



Source: EIOPA InsurTech Roundtable, presentation by Deloitte

New use cases for Blockchains are constantly emerging, underlining the nascent state of this field. During the break-out sessions other use cases discussed included examples in the area of identity or document management, where Blockchain could enable the automation of complex verification processes allowing the precise identification of an entity, person or document in the Blockchain. Blockchain could also be used in the area of regulatory reporting (RegTech), as well as for improving the recognition of claims history statements (which are used to calculate no-claims bonuses). It may offer innovative ways to complement or replace paper-based workflows.

Blockchain is likely to be first implemented in commercial lines than in personal lines, since the former are not affected by privacy issues such as the right to be forgotten recognised in the GDPR, which is at odds with the immutability of Blockchain. Blockchain has also great potential in the re-insurance business and for risk transfers in intra-group transactions; this is the approach that is being tested by a private Blockchain consortium of large European insurance and re-insurance undertakings.

Finally, the role that regulatory authorities could play in the area of Blockchain was also discussed. Arguably, supervisory oversight is less necessary in regards private Blockchains (notwithstanding antitrust and competition matters, or powers necessary to supervise possible illegal activities). In public Blockchains, supervisors may need to focus on a range of different issues, such as the role of miners and nodes, or security and privacy challenges. Some participants also noted that regulatory authorities could also consider addressing some of the legislative barriers preventing the implementation of Blockchain.

Key findings:

- The use of Blockchain in insurance is still limited, but the growing number of use cases shows its great potential
- Blockchain will likely first be implemented in commercial lines, in the re-insurance business and for intra-group transactions
- Smart contracts target usages are for example parametrics insurance, catastrophe bonds or plane tickets cancellation

Break-out session 3: Peer-to-peer insurance

It has been argued that the emergence of start-ups such as peer-to-peer (P2P) insurance takes place particularly where insurance premiums are high. These could be cases where consumers (for a variety of reasons) have few incentives for minimising risks and may also face cumbersome paper-based procedures when purchasing insurance and submitting claims. By empowering consumers and trying to improve the customer's (digital) experience, P2P insurers are emerging in a number of jurisdictions in Europe and abroad.

The issue of how precisely to define P2P insurance was discussed during this break-out session. Indeed the terminology of P2P insurance may sometimes be misleading. The difference with traditional mutual insurance is not always evident (some are considered to be "micro-mutual insurance") and P2P insurance does not appear to work as a completely decentralised platform as with P2P models in other sectors.⁷ The figure below provides some insights into key characteristics of P2P insurance.

Figure 6 - Definition of peer-to-peer insurance

Peer-to-peer insurance: a definition

Common features of peer-to-peer insurance models	<ul style="list-style-type: none">• Policyholders pooled into peer groups• Benefits sharing scheme in case of good claims experience• "Group self-insurance"
Expected benefits of peer-to-peer insurance	<ul style="list-style-type: none">• Improving customer experience to improve loyalty• Fostering lower-risk, responsible behaviors through transparency, social emulation and economic incentives• Also:<ul style="list-style-type: none">– reducing administration costs through digitized processes– reducing distribution costs through unique selling point• Reducing the cost of insurance for customers
Is peer-to-peer insurance really peer-to-peer?	<ul style="list-style-type: none">• NO: not strictly speaking, as it does not work as a two-sided platform like other peer-to-peer models• YES, as it matches the general spirit of the sharing economy



Peer-to-peer Insurance – EIOPA Insurtech Roundtable – April 28th 2017

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Source: EIOPA InsurTech Roundtable, presentation by Otherwise

P2P insurance implies a pooling of peer groups. The size of the group depends on the type of insurance and the expected benefits to be generated. Individuals gathered within groups in P2P insurance models usually share common interests, habits and/or behaviours, and have a sense of belonging to the group that fosters responsible behaviour vis-à-vis the other members of the group. Benefits are also traditionally redistributed between the members of the group, if the pool of money (administration costs deducted) is not consumed by claims.

However there are many different types of P2P insurance, depending, inter alia, on the level of intermediation (P2P insurance can be sold either directly through an insurer or through a broker/intermediary) or in the provision, where applicable, of an

⁷ For example digital platforms that have recently been created in the area of apartment rentals or taxi services.

ex-ante protection pool. Other P2P insurers operate in a Blockchain model, and there are also some P2P projects which intend to establish truly decentralised platforms.

The participants in the break-out session also looked into the risks and challenges faced by P2P providers. From the provider perspective, it was acknowledged that the product and service need to be precisely defined in order to not undermine the credibility of the business model. Communication and transparency therefore represent key success factors for P2P insurance providers.

As far as the regulatory challenges are concerned, some participants suggested that regulatory authorities should assess the adequacy of the current insurance rules in relation to the legal status of a peer group of individuals or the "money pool" created from the contributions of a group of individuals. The definition of 'insurance' was also discussed; is P2P insurance – i.e. the constitution by a peer group of a "money pool", dedicated to paying their claims up to its original amount – really insurance? Some participants suggested that there was a case for developing specific regulation for P2P insurance.

Key findings:

- Customer empowerment, peer groups, improved digital experience and incentives to responsibly behave within the group (e.g. via sharing of profits) are some of the key characteristics of P2P insurance
- P2P insurance can be provided either directly through an insurance undertaking or through a broker/intermediary in cooperation with a licensed insurance undertaking.
- Supervisory authorities should consider whether there is a case for developing specific regulation for P2P insurance to operate

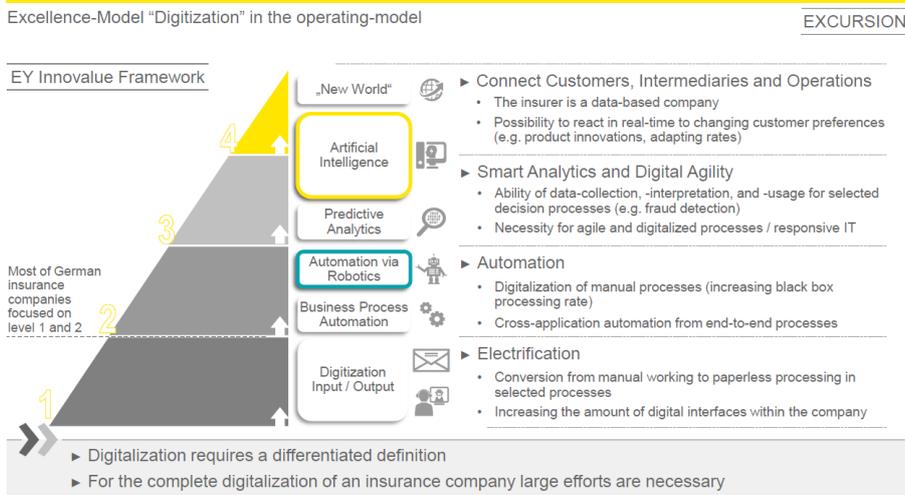
Break-out session 4: Artificial Intelligence

During this break-out session it was outlined how Artificial Intelligence (AI) is finding application in relation to the collection and processing of data along the insurance value chain. It is particularly relevant for interpretative and related decision processes. AI represents a step that goes 'further' than robotics and automation, although this separation is not always applied precisely. AI applications are often characterised by 'machine learning' (improvements on accuracy and identification of correlations and inferences that cannot be easily routinized, through the 'training' of a model that can then be applied at speed and scale).

In order to be able to harness the benefits of AI, insurance undertakings may need to undergo however lengthy and complex digital transformation processes, which start with the digitalisation of data and procedures traditionally completed manually and/or stored in physical mediums. This is typically followed by the automation of key processes, and subsequently proceed to the extraction of value from the digitalised data and interfaces through predictive analytics and AI.

Figure 7 - Digital transformation process

The Excellence-Model “Digitization” in Operations includes 4 levels; Artificial Intelligence is located in level 3 and 4



Source: EY Innovalue

Source: EIOPA InsurTech Roundtable, presentation by EY Innovalue

As set out in the figure above, most insurance undertakings have not reached the stage where they can truly harness the benefits of AI. However this is seen to be a matter of time. With this objective, several insurance undertakings have embarked on ambitious digital transformation projects, typically partnering with InsurTech start-ups to leverage their cutting-edge analysis tools and technology.

AI in insurance is currently mainly used, still at a reduced scale, for claims management and fraud detection. Regarding claims management, existing processes typically are human resource heavy, given onerous administrative tasks and some discretionary decision steps, making such internal process attractive for the use of AI for efficiency gains and related cost and time savings, including through possible improvements in accuracy and consistency. However AI often still triggers manual interactions at certain points, so does not currently imply complete automation. For example, irregular claims can be identified and submitted for the analysis of human claims handlers.

In the future AI could also be used in other areas of the insurance value chain such as tariff determination or complaints management. Regarding the latter, trials are reportedly already in place in the field of health insurance. The use of AI in tariff calculation and product design may require shifts in the steps of the product life cycle.

The role of supervisory authorities in this area was also discussed during the break-out-session. Currently supervisory authorities need to get a better understanding of AI and its consequences for the insurance sector. Understanding better the risk and opportunities of specific AI applications is a priority. Similar to the topic of Big Data, particular attention needs to be given in addition to privacy and data protection and ownership issues for consumers, and impacts of the technical architecture of AI for consumers. This includes challenges related to the transparency and reliability of AI, for instance the extent to which the inferences emerging from an AI model trained on general data can be definitive in relation to specific cases. For property and casualty insurance (P&C), challenges may be easier to face than for health and life insurance, as these latter raise critical ethical issues, particularly given the sensitivity of health data and the principle of solidarity in the insurance sector.

Key findings:

- Undertakings need to undergo a lengthy digital transformation process before being able to fully harness the benefits of AI
- AI in insurance is currently used and has a greater potential in the area of claims management
- Supervisory scrutiny could focus on the transparency and reliability of algorithms

Session 4: How can regulatory authorities encourage financial innovation in the insurance sector?

In today's globalized and digital economy, innovation is a source of growth and a key competitive factor. Developments such as Big Data, blockchain, AI or robo-advice have the potential to significantly disrupt the insurance sector. In this context, not only undertakings need to adapt their business models to new technologies, but also supervisory authorities have a role to play.

In this respect, supervisory authorities need to ensure a well-functioning consumer protection framework and financial stability, and at the same time allow stakeholders – including consumers – to properly harness the benefits of financial innovation. Start-up firms and incumbents may on occasions face regulatory impediments preventing them from developing innovative activities in the most transparent and effective way. They may also have difficulties in understanding the applicable regulatory frameworks, or experience problems accessing funding and resources.

A number of regulatory authorities, both in Europe and abroad, have recently adopted a series of initiatives aiming to foster financial innovation in their respective jurisdictions, as follows (specific initiatives differ in various Member States):

- Innovation hubs: financial regulators offer bespoke assistance to firms not used to dealing with financial regulations and/or which have doubts as to whether certain regulation apply to their activities.
- Regulatory sandboxes: offer a controlled environment for testing financial innovations that meet certain criteria. Sandboxes typically lower barriers to testing within the existing regulatory framework, while ensuring those participating on all sides are appropriately protected. If, after sandbox testing, the firm wants to offer its services to the wider market, it shall comply with existing regulatory frameworks applicable to that type of activity.
- Public-private partnerships: public authorities support private entities and create a forum for incumbents and star-ups to exchange resources, know-how and experiences and cooperate in the funding and development of innovative solutions.

In some countries such as the Netherlands, which already has undertaken activities under the first two initiatives described above, supervisory authorities are also scaling up interactions with stakeholders to discuss developments that are taking place in the market. These Authorities are committing resources to increase the knowledge and capacity of its staff in view of the increasing importance and complexity of the ever-changing technical innovations affecting the insurance sector. Finally, it is also being

assessed whether policies, rules or regulations require any changes to accommodate new developments.

All of the above initiatives, aiming to foster financial innovation in an appropriate manner, were welcomed by the participants in the roundtable. However, the need to respect key supervisory principles such as technological neutrality, proportionality, consistency from an activity-based perspective, and market integrity was also highlighted. Additionally, the necessity to always place consumer protection at the heart of supervisory action was highlighted.

On the particular topic of regulatory sandboxes, some of the participants considered that they must be transparent in their functioning and open to all types of undertakings, not only start-ups (as it is already the case in most Member States). It was also considered important to identify and promote best-practices and avoid disorderly regulatory competition between the jurisdictions.

Key findings:

- It is important to ensure a well-functioning consumer protection framework and financial stability and at the same time make sure that stakeholders can properly harness the benefits of financial innovation
- Regulatory sandboxes, innovation hubs and public-private partnerships are three different types of initiatives aiming to foster financial innovation
- Key supervisory principles such as technological neutrality, proportionality, consistency from an activity-based perspective, market integrity and consumer protection must be respected at all times

Annex - Agenda of the event

	9:00	Registration
1.	9:30	Opening Speech Speaker: Fausto Parente, Executive Director, EIOPA
2.	9:45	Impact of digital technologies in the insurance value chain Speaker: Agostino Ferrara, Chief Operating Officer, Allianz Italia This session will discuss how digital technologies are impacting the different stages of the insurance value chain. It will also cover how the insurance industry is adapting to digitalization and what challenges it faces.
3	11:00	The advent of new players: InsurTech firms Speaker: Eckhardt Weber, Managing Director, Finleap This session will discuss what the main hurdles are, including regulatory, faced by InsurTech start-ups, what types of products and services do they offer and how do they interact with incumbents.
	12:15	Lunch break
4	13:15	Break-out session 1: Big Data and Internet of Things Speaker: Florian Grailot, Senior Associate, AXA Strategic Ventures Break-out session 2: Block-chain and smart contracts Speaker: Dirk Siegel, Partner and Leader Blockchain Institute, Deloitte Break-out session 3: Peer-to-peer insurance Speaker: Raphael Berger, President and Cofounder, Otherwise Break-out session 4: Artificial intelligence Speaker: Nils Mahlow, Head of Innovation Competence Team, EY Innovalue Each of the break-out sessions will discuss what are the main characteristics of the above financial innovations and their implications for undertakings and consumers
5	14:30	Discussion of results from the break-out sessions
	15:00	Coffee break
6	15:30	How can regulatory authorities encourage financial innovation in the insurance sector? Speaker: Anke Klein, Project Manager Innovation and FinTech, De Nederlandsche Bank This session will discuss regulatory sandboxes, public-private partnerships and other tools available to promote financial innovation whilst ensuring adequate protection of consumers and financial stability of the market.
	17:00	Scheduled end of meeting