



# Artificial intelligence and Big Data

## What is artificial intelligence and Big Data?

There is not a unique definition of Artificial intelligence (AI), but the term is often used to refer to IT systems that perform functions usually performed by human capabilities. AI can ask questions, discover and test hypotheses, and make decisions automatically based on advanced analytics operating on extensive data sets.

Machine learning is one subcategory of AI, where computers have the ability to learn from data through appropriate algorithms, allowing computers to identify hidden patterns (correlations) in data without being actually programmed to do so, in order to perform a concrete task.

Big Data Analytics (BDA) commonly refers to large volumes of data that can be generated, processed and increasingly used by digital tools and information systems for making predictive, descriptive and prescriptive analysis. This capability is driven by the increased availability of structured data, the ability to process unstructured data, increased data storage capabilities and advances in computing power. How does it apply in insurance and pension sectors?

Insurance has been a heavy user of data from the early days of its existence; insurance undertakings have historically used data and data analytics processes to assess and underwrite risks, price insurance policies or pay insurance claims.

However, in today's digital society, there is an increasing availability of new sources and types of data (e.g. IoT data, image data or social media data), which can be processed by increasingly powerful and complex algorithms, including AI systems, bringing several opportunities, but also some challenges.

## What risks and opportunities for the markets?

The take-up of Artificial Intelligence in all the areas of the insurance value chain raises specific opportunities and challenges.

The main benefits of using Artificial Intelligence are:

- more efficient and automated processes
- prediction accuracy
- more personalised products and services

Some of the challenges arising from using Artificial Intelligence are:

- transparency and explainability issues
- the potential impact of some AI use cases on the fair treatment of consumers
- limited financial inclusion of high-risk or vulnerable consumers

## How is EIOPA addressing AI and Big Data?

In March 2018 the Joint Committee of the European Supervisory Authorities ("ESAs") published its final report on the use of Big Data by financial institutions. The report summarised the feedback received by stakeholders during a public consultation the previous year, and identified a number of opportunities and risks arising from the increasing use of Big Data by financial institutions.

In May 2019 EIOPA conducted a thematic review on the use of Big Data Analytics in motor and health insurance. This fact-finding exercise showed that around one third of the participating insurance firms were already adopting a wide variety of AI use cases across the different areas of the insurance value chain, and another third of them were experimenting with this technology.

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Following the publication of the thematic review, EIOPA created a consultative expert group in order to identify ways to address the opportunities and risks associated with the growing use of AI in insurance. Their work resulted in the publication of a report on digital ethics setting out artificial intelligence (AI) governance principles for an ethical and trustworthy AI in the European insurance sector.

The report highlights six principles for effective governance in artificial intelligence:



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