

Pérez-Llorca

TECHLAW

Artificial
intelligence

NOVEMBER 2023

*A challenge for
companies and
for regulators*



Andy Ramos

Partner, Intellectual Property and
Technology

aramos@perezllorca.com

+34 91 423 20 72



Roberto Vicente

Head of Innovation

— ANDY RAMOS AND ROBERTO VICENTE

What is AI really? Types, classifications and glossary (Deep learning, machine learning, algorithms, etc.)

The technology sector lives in a constant quest to find new and disruptive technologies, in short time cycles, to keep the collective excitement for the digital world and economy high. A year ago, Pérez-Llorca published a note on the legal aspects of Web3, a phenomenon which, according to data provided by Google Trends, has suffered a notable decline in favour of other technologies, mainly artificial intelligence (“AI”).

Unlike other recent technological developments, such as cloud computing, blockchain, web3 or even the still non-existent metaverse, AI as a term and as a concept dates back to 1955, when mathematician John McCarthy conceived of it, subsequently defining it as the “science and engineering of developing intelligent machines, especially intelligent computer programs”, understanding intelligence as “the computational part of the ability to achieve goals in the world”.

For almost six decades, AI was cyclically gaining notoriety thanks to films, literature, inventions or digital business models theoretically based on it. In recent times, first in 2011, thanks to certain IT developments, and more recently in 2016, with the beginning of certain pre-legislative debates² or even regulations on the use of certain AIs³ in specific contexts, in the wake of the first self-driving cars, these techniques left the laboratories of universities and the most advanced computer companies to spread among companies, politicians and lawyers.

The artificial intelligence boom has coincided with the imminent approval of specific regulation.

The latest AI resurgence came in 2022, with the launch of the first generative artificial intelligence (“GenAI”) services capable of creating images, texts or videos in a coherent way, namely Stable Diffusion, DALL-E, Midjourney and, above all, ChatGPT, coinciding with the European Union’s legislative work to approve the first specific regulation for AI.

1. AI is already affecting multiple sectors and their regulation

In order to determine whether a particular technology might be affected by the regulatory framework that is being created for it, it is first necessary to delimit what kind of computing developments are intelligent. Although no consensus definition exists in the scientific community⁴, the *High Level Expert*

1 MCCARTHY, John, *What is Artificial Intelligence?*, 2007, Stanford University, available at <http://jmc.stanford.edu/articles/whatisai/whatisai.pdf>

2 The starting point in the European Union can be found in the conclusions of 19 October 2017 of the European Council, which invited the Commission to take a position on AI; document available at <https://www.consilium.europa.eu/media/21620/19-euco-final-conclusions-en.pdf>.

3 For example, the *Better Online Ticket Sales Act* (known as the BOTS Act) of 2016, ratified by President Barack Obama, to prevent individuals and businesses from automating the process of buying tickets to shows in bulk using bots.

4 As an example, the *National Science and Technology Council Committee on Technology* of the US Executive Office of the President defined it as “a computerized system that exhibits behavior that is commonly thought of as requiring intelligence” (available at https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf); scientist Bertram Raphael conceived of it in 1976 as “the science of making machines do things that would require intelligence if done by men” (*The Thinking Computer*. Ed. W.H. Freeman and Company); and the founding father of computing, Alan Turing, defined computing as “the science and engineering of making intelligent

Group on Artificial Intelligence, a group of independent experts appointed by the European Commission, has provided a definition that is serving as a basis for policy and legislation: “Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions⁵”.

There is also no categorisation of the different AIs currently in use or that may be developed in the future, although a distinction is usually made according to the analysis of their functionalities or capabilities. Arend Hintze⁶ divided these functionalities into four categories.

Functionalities of artificial intelligence:

- **Reactive machines** are those without memory power or the ability to learn from past experience (e.g. Deep Blue, a specialised chess-playing system created by IBM in the 1990s).
- **Limited memory:** these systems are able to analyse the past in order to use its information to make better future decisions (e.g. as the most advanced GPS systems do today).
- **Theory of mind:** Still in development, this AI not only forms representations about the world, but also about other agents or entities, known in psychology as Theory of Mind. The aim of these systems is to understand people, creatures and other objects in the world, in order to provide responses based on their thoughts and emotions.
- **Self-awareness:** this would be the final stage in the development of AI systems, still in a state of hypothesis, and would imply that they could form representations of

themselves, capable of analysing their internal states in order to make their own decisions.

Capabilities of artificial intelligence:

- **Artificial Narrow Intelligence (“ANI”):** these are the most common systems today (e.g. chatbots), which combine limited memory together with reactive machines, to carry out very specific tasks.
- **Artificial General Intelligence (“AGI”):** these systems, which do not currently exist, must be able to teach, learn, understand and perform in a similar way to a human, without being limited to a specific field of action.
- **Artificial Super Intelligence (“ASI”):** these systems, if they exist in the future, will be able to perform tasks better than a human being thanks to their greater capacity for data processing, memory and decision-making based on multiple sources.

One of the most important aspects of these systems is their need to be trained for correct decision-making, which requires input data and learning methods for the AI to autonomously discriminate right from wrong outcomes. For this purpose, these systems use different techniques, mainly Machine Learning⁷, Deep Learning⁸ and Neural Networks⁹, which are related to one another.

The great progress made in recent years in the field of AI is mainly due to the so-called transformer architecture, which was described in a scientific publication in 2017 by a group of university professors and engineers¹⁰ at Google. This architecture is based on attention and self-attention to each word according to its context in a given sentence in order to, based on the training received, massive data processing and the application of a Large Language Model¹¹, produce coherent results¹². Thanks to this technology, a GenAI system, such as ChatGPT, weighs each word to provide output data that takes into account the input context.

The transformer architecture is therefore based on different techniques to give a result, supported by statistics and

machines, especially intelligent computer programs” (available at <http://www-formal.stanford.edu/jmc/whatisai/node1.html>).

5 A definition of AI: Main capabilities and scientific disciplines. High-Level Expert Group on Artificial Intelligence of the European Commission (2019) (available at https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=56341).

6 Hintze, A. (2016) *Understanding the Four Types of AI, from Reactive Robots to Self-Aware Beings*. The Conversation (available at <https://theconversation.com/understanding-the-four-types-of-ai-from-reactive-robots-to-self-aware-beings-67616>).

7 It is the ability of a system to mimic the behaviour of human intelligence through algorithms, to be able to identify patterns in massive data and to develop techniques that give machines the ability to learn from past experience.

8 A sub-type within the field of Machine Learning that is based on training a system to perform tasks like humans do, such as speech recognition, image identification or making predictions.

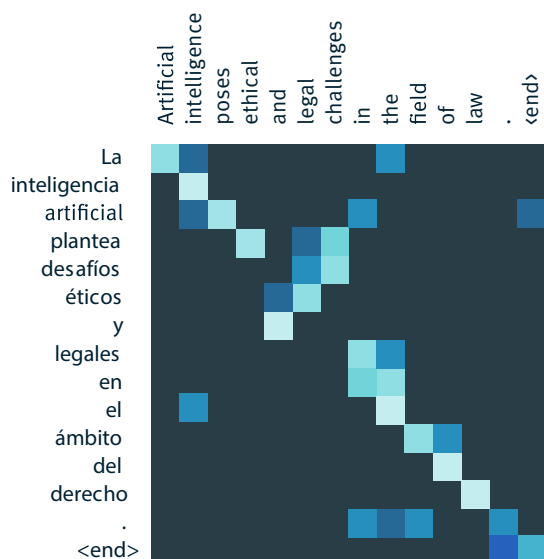
9 A subtype of Machine Learning and the basis of Deep Learning algorithms, known as “neural” because they mimic the way neurons in the brain transmit signals to each other. It performs the machine learning process using an artificial neural network, which is what makes it able to simulate the behaviour of the human brain. Neural networks consist of at least three layers of nodes: an input layer, one or more hidden layers and an output layer. Each node is an artificial neuron that connects to the next one and has a weight in the system, with certain thresholds. When this is exceeded, the node is activated and sends its data to the next layer of the network.

10 Ashish Vaswani, Noam Shazeer, Niki Parmar, Jakob Uszkoreit, Llion Jones, Aidan N. Gomez, Lukasz Kaiser, Illia Polosukhin. *Attention Is All You Need* (2017) (available at <https://arxiv.org/abs/1706.03762>).

11 A Large Language Model is a statistical language model that assigns a probability to a sequence of words, which is processed in a neural network with billions of different parameters, in order to determine the most accurate one in terms of probability.

12 An extensive explanation of how this technology works can be found in *What is transformer architecture and how does it power ChatGPT* by Amit Prakash.

probability according to the weight of each word entered by the GenAI operator over the rest of the same sentence, all of which is parameterised in a foundation model.



Understanding how AI works and its capabilities is essential to analyse how the regulation can condition the future development of this technology.

AI has crept stealthily but steadily into multiple areas of law, including intellectual property rights, with discussions on AI-generated content; the stock markets, by using software for automated stock purchases; the labour market, by using algorithms to distribute tasks and assignments; criminal law, by using software to predict the commission of crimes; or in the field of insurance, for the compensation of damages caused by AI.

In this paper we will analyse how AI, in its different variants, is already impacting various industries and sectors, with a special emphasis on how legislation, often in a discreet manner, is adapting to address different legal issues, while trying to maintain a human-centric position.

Pérez-Llorca

TECH LAW

Artificial intelligence

NOVEMBER 2023

A challenge for companies and for regulators



Sonsoles Centeno

Partner, Competition and European Union Law

scenteno@perezllorca.com
+32 (0) 2 79 67 51



Raúl Rubio

Partner, Intellectual Property and Technology

rrubio@perezllorca.com
+34 91 353 45 59

SONSOLES CENTENO AND RAÚL RUBIO

Regulatory aspects (AI Act). European view on artificial intelligence (ethical, legal and commercial aspects)

1. The European vision of artificial intelligence. General aspects of the proposed Regulation

The proposal for a Regulation laying down harmonised rules in the field of artificial intelligence (the “**proposed Artificial Intelligence Act**” -AI Act¹), is part of the European AI Strategy² which includes the Communication on Fostering a European approach to AI³ and the latest review with the Member States of the Coordinated Plan on AI⁴.

In addition, there are other legislative initiatives which, although not part *stricto sensu* of the so-called “digital package”, do aim to round out the regulatory framework in this area and adapt liability rules to the digital transition, such as the proposal for an Artificial Intelligence Liability Directive⁵, and the proposal for a Product Liability Directive⁶, both of which were presented in September 2022.

According to the various Commission Communications, the European vision of AI is human-centred, sustainable, safe, inclusive and reliable. In the White Paper⁷, the European Commission notes that the foundation of AI regulation is trust and excellence in AI.

On trust, the Commission supports a human-centric approach to the standard, proposing a classification of AI systems according to risk: unacceptable, high, limited and minimal. This classification will provide reliability, transparency and allow the user to decide on its use.

In terms of excellence, the updated Coordinated Plan on AI outlines a vision to accelerate, act and align priorities with the current European and global AI landscape and to implement the European AI Strategy. The aim is to maximise available resources and coordinate investments funded through the Digital Europe and Horizon Europe programmes to position Europe as a world leader in the field.

The proposed AI Act on artificial intelligence is the key instrument in the whole strategy and is currently pending legislation. Its objectives and content are briefly described below. The objective of the proposed AI Act is to improve the functioning of the internal market by establishing a harmonised legal

1 Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts COM 2021 (206), available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206>

2 Communication from the European Commission Artificial Intelligence for Europe COM (2018) 237, updated by the Communication from the European Commission Fostering a European approach to artificial intelligence COM (2021)205.

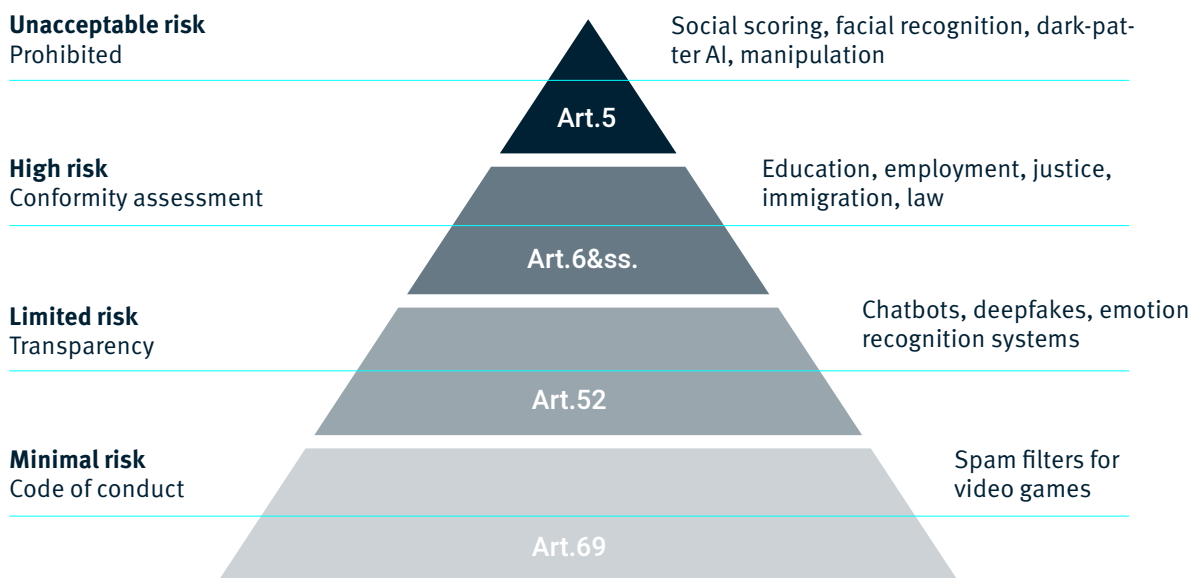
3 COM (2021)205.

4 2021 Review of the Coordinated Plan on Artificial Intelligence COM (2021) 205.

5 Proposal for a Directive of the European Parliament and of the Council on adapting non-contractual civil liability rules to artificial intelligence (AI Liability Directive) COM (2022) 496.

6 Proposal for a Directive of the European Parliament and of the Council on liability for defective products COM (2022) 495.

7 White Paper on Artificial Intelligence: a European approach to excellence and trust, COM 2020 (65 final), 19.2.2020.



framework for the development, marketing and use of AI⁸ while respecting the principles, values and fundamental rights protected by the European legal order.

The objective of a legal framework is to foster the development, commercialisation and use of AI, while respecting fundamental principles, values and rights.

More specifically, the Commission sets out the following specific objectives⁹:

- Ensure that AI systems placed on the Union market and used are safe and respect existing law on fundamental rights and Union values;
- Ensure legal certainty to facilitate investment and innovation in AI;
- Enhance governance and effective enforcement of existing law on fundamental rights and safety requirements applicable to AI systems; and
- Facilitate the development of a single market for lawful, safe and trustworthy AI applications and prevent market fragmentation.

In terms of content, the aim is to achieve a balanced and flexible regulation that addresses the risks and problems associated with AI, without unduly hampering technological development. Highlights include:

- **Scope (Title I).** The proposed AI Act provides for a broad subjective and territorial scope of application. Thus, it covers a range of different actors involved in AI development processes, such as suppliers, implementers, importers and

distributors not only in Europe, but also in third countries where they can have effects in the EU.

- **Prohibited artificial intelligence practices (Title II):** The proposed AI Act follows a risk-based approach that distinguishes between uses of AI, differentiating between unacceptable, high and low or minimal risks.
- **High-risk systems (Title III):** Such systems carry a high risk to the health and safety or fundamental rights of individuals, requiring enhanced obligations with regard to (i) data governance; (ii) security and human oversight; (iii) transparency duties; (iv) registration in the European database; and (v) passing the relevant compliance and certification test.
- **Transparency obligations (Title IV):** The proposed AI Act establishes transparency obligations for systems that (i) interact with humans, (ii) are used to detect emotions or determine association with specific (social) categories on the basis of biometric data or (iii) generate or manipulate content.
- **Measures in support of innovation (Title V):** These will contribute to the objective of creating a legal framework that is innovation-friendly, future-proof and is resilient to disruption. It encourages national competent authorities to set up controlled testing environments and establishes a basic framework in terms of governance, supervision and liability.
- **Governance and implementation (Titles VI, VII and VIII):** At Union level, the proposal provides for the establishment of a European Artificial Intelligence Board that will facilitate a smooth, effective and harmonised implementation of the proposed AI Act, contributing to the effective cooperation of national supervisory authorities

⁸ Recital 1 of the proposed Regulation.

⁹ Explanatory Memorandum to the proposed AI Act.

and the Commission. At national level, Member States will designate a national supervisory authority to monitor the implementation and enforcement of the Regulation.

- **Codes of conduct (Title IX):** A framework for the creation of codes of conduct is created, the aim of which is to encourage providers of non-high-risk AI systems to apply voluntarily the mandatory requirements for high-risk AI systems.
- **Final provisions (Titles X, XI and XII):** Measures are laid down to ensure the effective implementation of the Regulation through effective, proportionate and dissuasive penalties, rules for the exercise of delegation and implementing powers and, finally, an obligation for the Commission to regularly evaluate the implementation of the future Regulation.

The content of this regulation is intended to be balanced and flexible so as not to hinder technological development.

2. Current state of play in the legislative process of the Proposal for AI Regulation

The applicable procedure for the adoption of the proposed AI Act is the ordinary legislative procedure, the legal basis chosen being Articles 16 and 114 TFEU. At the date of publication of this paper¹⁰ it is currently being processed, with the European Parliament having adopted its negotiating position on 14 June 2023¹¹. For its part, the Council adopted its General Approach on 6 December 2022¹² pending the holding of the trilogues under the Spanish Presidency.

The changes proposed by the European Parliament can be summarised as follows:

- **Definition:** The Parliament amends the definition of AI systems to bring it into line with the definition agreed by the Organisation for Economic Cooperation and Development (OECD).
- **Prohibited practices:** The Parliament believes that the use of biometric identification systems in the Union should be prohibited, both in real time and ex post (except in cases of serious crime and ex post pre-judicial authorisation for their use) and not only for use in real time, as proposed by the Commission.
- **High-risk AI systems:** Parliament adds the additional requirement that systems must present a “significant risk” to be considered high-risk. In addition, the Parliament imposes an obligation on those implementing a high-risk scheme in the Union to carry out a fundamental rights

impact assessment, including a consultation with the competent authority and relevant stakeholders.

- **General purpose AI:** The Parliament wants to require providers of foundation models to assess and mitigate the risks associated with their models, to comply with certain design, information and environmental requirements, and to register their models in an EU database.
- **Governance and enforcement:** The Parliament proposes the creation of an AI Board, a new Union body to support harmonised implementation of the AI Regulation, provide guidance and coordinate joint cross-border investigations.
- **Research and innovation:** In order to support innovation, the Parliament agrees that research activities and the development of free and open source AI components would be largely exempted from compliance with the rules of the AI Regulation.

In relation to the Council’s position, the following points should be noted:

- **Definition of AI systems:** the Council advocates restricting it to systems developed through machine learning strategies and based on logic and knowledge.
- **Prohibited AI practices:** the Council extends the ban on the use of AI for citizen scoring purposes to private actors. In addition, the provision prohibiting the use of AI systems that exploit the vulnerabilities of specific groups of persons now also includes socially or economically vulnerable persons.
- **Scope:** the Council text explicitly excludes military, defence or national security purposes from the scope of the Regulation.
- **Penalties for non-compliance with the Regulation:** the Council text reduces the administrative fines that can be imposed on SMEs and start-ups.
- **Transparency:** the text strengthens transparency regarding the use of high-risk AI systems and public entities will also be obliged to register in the EU database of high-risk AI systems.

The text is expected to be adopted before the end of the Spanish Presidency on 31 December 2023.

3. The Spanish position

The National Artificial Intelligence Strategy (ENIA) aims to provide a reference framework for the development of AI in Spain. The ENIA is one of the pillars of the España Digital Agenda

¹⁰ 30 October 2023

¹¹ P9 TA(2023)0236. Accessible at https://www.europarl.europa.eu/doceo/document/TA-9-2023-0236_EN.html

¹² Council document of 25 November 2022, 14954/22.

2026 and one of the components of the Plan for Recovery, Transformation and Resilience for the Spanish economy.

The España Digital Strategy 2026 presents a series of measures and actions in the field of AI and the Data Economy. For the purposes of this text, we highlight the following:

- Creation of the *Oficina de Dato* (Data Office) and the role of the Chief Data Officer within the General State Administration.
- Launch of the *Consejo Asesor de Inteligencia Artificial* (Artificial Intelligence Advisory Board).
- Regulatory sandbox for the implementation of the future European AI Regulation, the results of which will be included in a best practice guide and implementation guidelines, to be published during the Spanish Presidency of the Council of the EU.
- Establishment of the *Agencia Nacional de Supervisión de la Inteligencia Artificial* (National Agency for Supervision of Artificial Intelligence). The Spanish government decided to establish its headquarters in A Coruña, with the aim of anticipating the approval of the European Regulation for the creation of this control body.

During its presidency of the EU, Spain set itself the objective of approving the proposed AI Act.

The objectives set by the Spanish government at the time of publication of this text are to foster an ethical and regulatory framework for the deployment of AI; promote R&D&I in AI; encourage the attraction of national and international talent; foster the creation of data and technological infrastructures; and integrate AI into the value chains of the industrial fabric.

However, the attraction of private investment will be heavily conditioned by the ability of legislators and regulators to generate an efficient and coherent legal framework that reduces legal uncertainty for entities operating within it. A wide range of regulations, the large number of regulators that will have competences from different perspectives on AI, the strong growth of soft law mechanisms and the cost overruns that an overly bureaucratized compliance model may generate do not seem to go in that direction.

The attraction of private investment to Spain will be heavily conditioned by the ability of legislators and regulators to reduce legal uncertainty for companies.

In this context, at the date of publication of this document, the Spanish Data Protection Agency has already announced preliminary investigation actions, in coordination with the rest of the European authorities, for a possible breach of the regulation by one of the main operators of generative AI.

Pérez-Llorca

TECHLAW

Artificial intelligence

NOVEMBER 2023

*A challenge for
companies and
for regulators*

Barcelona

-

Brussels

-

Lisbon

-

London

-

Madrid

-

New York

-

Singapore

perezllorca.com

What can companies already do?

- Inventory and analysis of the AI systems in use
- Governance model for the procurement, design and use of AI
- Reviewing the design of AI systems to avoid engaging in prohibited practices
- Policies on the use of AI within the organisation
- Creation and design of AI working teams and committees
- Fundamental rights impact assessment of high-risk AI systems
- Compliance with transparency obligations of AI systems
- Establishment of security measures to prevent information leaks due to the use of AI
- Contracting AI providers
- Training and awareness-raising
- Preparation of technical documentation of the foundation models and GenAI models
- Controls and audits: continuous evaluation of the AI system to avoid biases

The information contained in this document is of a general nature and does not constitute legal advice.

This document was prepared on 28 November 2023 and Pérez-Llorca does not assume any commitment to update or revise its contents.