

# CHALLENGES OF THE NOT-SO-FAR FUTURE: EU ROBOTICS AND AI LAW IN BUSINESS

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## Abstract

*The paper focuses on the emerging European legislation in the area of artificial intelligence and robotics, based on the currently fast developing technical procedures for the manufacture of products characterized by autonomy. The importance of having a clear and stable legislation for the production and spread of technical devices has been under discussion for some time now and member states have reached preliminary conclusions regarding the definition and criteria by which one can identify artificial intelligence. Also, continuous innovation lead to the necessity of integrating these AI products in common household economy and therefore, the need for a proper legal framework addressing both liability and limits for creating and operating machines for civil use arose. This article shall review the measures already taken by the European Parliament and the European Commission for the establishment of a standardized legal framework related to robotic and artificial intelligence products. The objectives of this study are to analyze the general guidelines available as created by the EU legislator which shall ultimately be transposed in national legislation, in order to supersede the current lack of regulations for companies developing and selling AI products nation-wide.*

**Keywords:** "civil law rules on robotics", "artificial intelligence and its liability", "Robotics Regulation in the European Union", "robotics liability".

## 1. Introduction

Law should be the expression of a set of norms emerging from the current real situations mankind is confronted with. For example, once you have the first homicide, the state regulates that homicide is a criminal offence and any perpetrator is punished. But what is the solution when reality is faster than the legal framework and you find yourself in a situation where, for example, a Tesla car without a driver while circulating within the limits of legal obligations applied to any man-driven vehicle, endangers a citizen on a crossing? Or how will a situation when several autonomous cars collide, creating human victims, be dealt with? Who shall bear liability in such case - the car manufacturer, the IT software manager or the person sitting on the left side who did not intervene? And whom shall you prosecute in such a case: the human or the robot itself?

Currently, we are unable to fully reply to these queries, since the available framework applies limitedly and by analogy. We have only stipulated sanctions applicable for the citizens of a country without thinking that one day, damages may be occurred as a result of a non-man intervention. Well, while almost all participants to the legal system have been busy catering to more classical matters, that day has come.

Therefore, based on recent developments, there is the urgent need to establish a proper legal framework which allows citizens and professional to know their rights and obligations when contracting an artificial intelligence tool, a smart contract or when a product

which may be identified as a robot creates certain changes in the contractual dynamic between parties.

## 2. The A-B-C of artificial intelligence

Although many may establish what artificial intelligence is based on the information available through social media or mainstream media, the truth is that there is no accurate definition generally accepted and adopted as a legal norm.

Defining a machine as intelligent was firstly done by Alan Turing, Deputy Director of the Computing Machine Laboratory at the University of Manchester, while developing the world's first stored program digital computer.

In 1950 Alan Turing created the so-called Turing Test<sup>1</sup> for establishing whether a machine is 'intelligent': a machine could be said to 'think for itself' if a human interlocutor could not tell it apart from another human being in conversation. However, the term "artificial intelligence" is known to have firstly been used by Professor John McCarthy at Dartmouth College, New Hampshire, USA in 1956.

In 2010, a definition of artificial intelligence which reflects the basic understanding of the term emerged:

"Artificial intelligence is that activity devoted to making machines intelligent, and intelligence is that quality that enables an entity to function appropriately and with foresight in its environment<sup>2</sup>".

By now, artificial intelligence has been deemed to be the fourth industrial revolution humanity is currently

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<sup>1</sup> *Computing Machinery and Intelligence*, Alan Turing, *Mind*, October 1950.

<sup>2</sup> *The Quest for Artificial Intelligence: A History of Ideas and Achievements*, Prof Nils J Nilsson, Cambridge University Press, 2010.

undergoing, in the words of the executive chairman and founder of The World Economic Forum, Klaus Schwab<sup>3</sup>, after steam, electricity and computing. Mr Schwab's thesis is that humanity is on the break of substantial IT-driven change where we may expect a 'deep shift' by 2025 which will materially impact our lives.

Already artificial intelligence is used in our households and encountered frequently in a high-pace society. As the Briefing issued in January 2018 by the EPRS | European Parliamentary Research Service<sup>4</sup>, artificial intelligence has become the usual technology used in the following cases: automatic translation, provided for example by Google Translate, speech recognition and interpretation, such as the example between English and Chinese demonstrated in November 2012 by Rick Rashid of Microsoft, face recognition systems used in criminal investigations or to unlock a smartphone, Self-driving vehicles: equipped with sensors and analysing gigabytes of information each second, the new generation of automated vehicles combine different AI systems to drive themselves (Tesla or Waymo), medical diagnosis: AI can help physicians establish or confirm a diagnosis (Human Dx), or even Killer robots: lethal autonomous weapons systems are able to select and engage targets with little or no human intervention

### 2.1. How does artificial intelligence actually work?

Artificial intelligence requires highly skilled systems which are able to learn from humans or even individually, by applying several learning methods, how to reach a result by themselves through autonomous and cognitive thinking. In order to properly operate and gain a higher level of artificial intelligence, these systems learn based on the data usually stored in cloud, with the help of humans which are responsible for guiding the learning process.

– Even in the initial stage of exploring the vast realm of artificial intelligence, the consequences of an improper use of data stored in cloud has kept recent headlines active. The case refers to Facebook's leak of data to Cambridge Analytics, a company which employed several artificial intelligence programs in order to analyze the data pertaining to a large number of people so that certain benefits in political campaigns were envisaged to be gained. European legislators foresaw this type of situation and developed the General Data Protection Regulation (GDPR) (EU) 2016/679.

### 2.2. Practical analysis of cases in which artificial intelligence is used in relation to legal field

Although in Romania, the implementation of artificial intelligence is remote, most likely due to limited legal framework protecting the parties using such tools, the practical approach of other nations implementing these tools is remarkable.

#### 2.2.1. Predictive coding

For example, artificial intelligence has been used by law firms for the analysis of high-volume data. In one case, the English High Court issued a decision approving the use of predictive coding technology for electronic disclosure, at the request of both parties, in *Pyrho Investments Ltd v MWB Property Ltd & Ors* [2016] EWHC 256 (Ch)<sup>5</sup>. The most substantial point of dispute was over the most appropriate and proportionate approach to disclosure by the respondent who, it was accepted, held the significant majority of the potentially relevant documents. BLP, an English-based law firm representing the respondent, proposed that the documents were analyzed through predictive Coding, which is a machine learning technology driven by human tuition. Basically, a lawyer would initially review a small set of documents. Then, the result is analyzed by the technology and used to generate a further sample for review. If the review is considered accurate, the system is set to further review all the documents, thus being cost and time efficient. The English court ordered that predictive coding be used by the respondents' solicitors in this case, marking the first such order made without the consent of all parties.

#### 2.2.2. Smart contracts

Another field where artificial intelligence has gained leverage is the contractual one, since by using blockchain technology, parties are able to efficiently record any data on a so-called smart contract. The blockchain is a comprehensive, always up to date accounting record or ledger of who holds what or who transferred what to whom<sup>6</sup>. The principle of blockchain, which became known once the Bitcoin arose in influence, is that the contracting parties may use it to record anything which they agree is the contract's object, such as movable or immovable assets, transactions, shares, financial instruments, databases etc. Blockchain technology is used for legal agreements in a similar way is was used for the creation of the Bitcoin. It is based on cryptography, meaning it allows the parties to authenticate their identities. Afterwards, it creates immutable hashes (digets) of each ledger record, the current page of records (block) and the binding that links (chains) each block to the earlier ones. Once it is created, the blockchain ledger is distributed and a complete and updated copy is held on the computers of each of the network participants - contractual parties (miners) who help keep it up to date.

<sup>3</sup> 'The Fourth Industrial Revolution', Klaus Schwab, World Economic Forum, 2016.

<sup>4</sup> Briefing issued in January 2018 by EPRS | European Parliamentary Research Service addressed to, the Members and staff of the European Parliament as background material to assist them in their parliamentary work.

<sup>5</sup> <http://www.blplaw.com/expert-legal-insights/articles/blp-wins-contested-application-predictive-coding>.

<sup>6</sup> Richard Kemp, Legal Aspects of Artificial Intelligence, November 2016, available at [www.kempitlaw.com](http://www.kempitlaw.com), November 2016.

The software can also be used to make and execute chains or bundles of contracts linked to each other, all operating autonomously and automatically. Here, the immutability of the hash (digest) representing each ledger record can get in the way, when all the links in what may end up as a long contractual chain need to execute at the same time to keep the record straight. To get around this, the blockchain is starting to be made editable, with trusted administrators – called oracles – able to change the database.

The underlying difference is that for the use of smart contracts, one must adhere to a new contractual codified infrastructure in which the operator and the user of the contractual platform are linked together by the software developer.

### 3. Legal and Regulatory Aspects

#### 3.1. Is a new legal framework necessary?

Given that the application of artificial intelligence is continuously growing, it is imperative to establish whether the current legal framework suffices to address the issues regarding the application and implementation of artificial intelligence in our homes and in our businesses.

The issue of a new regulatory background has been addressed for some time now. At the USA Committee of Technology, 12 October 2016, the Executive Office of the President and the National Science and Technology Council (NSTC)<sup>7</sup>, stated that *"If a risk falls within the bounds of an existing regulatory regime, moreover, the policy discussion should start by considering whether the existing regulations already adequately address the risk, or whether they need to be adapted to the addition of AI. Also, where regulatory responses to the addition of AI threaten to increase the cost of compliance, or slow the development or adoption of beneficial innovations, policymakers should consider how those responses could be adjusted to lower costs and barriers to innovation without adversely impacting safety or market fairness"*.

Legal aspects regarding the utilization of artificial intelligence determine consequences in the field of contractual law, intellectual property, data privacy and tort law.

#### 3.2. Potential legal framework regulating artificial intelligence in EU

Steps have been carried out at the level of the European Union for the creation of a proper background for the development of clear and responsible guidelines for the creation of intelligent machines and products. Law and regulation of Artificial Intelligence and robots is emerging, fuelled

by the introduction of industrial and commercial applications in society.

#### 3.2.1. Report on Civil Law Rules on Robotics

In January 2017, the European Parliament adopted a report on Civil Law Rules on Robotics that includes recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)).

One of the ideas discussed by the Members of the European Parliament was the imperative necessity for the European Commission to adopt legislation to clarify liability issues. Also, a voluntary ethical code of conduct on robotics for researchers and designers was discussed, so that they operate in accordance with legal and ethical standards and that robot design and use respect human dignity. The report outlined the importance of creating a European agency for robotics and artificial intelligence.

Based on the issuance of this report, Parliament's Committee on Legal Affairs (JURI) decided to hold a public consultation specifically on the future of robotics and artificial intelligence, with an emphasis on civil law rules.

#### 3.2.2. Resolution on robotics

Further to the Report on Civil Law Rules, on 16 February 2017 the European Parliament adopted a Resolution on robotics<sup>8</sup> with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)).

The most relevant aspect of the Resolution on robotics may be summarized as follows:

- the European Parliament called on the Commission to propose common Union definitions of cyber physical systems, autonomous systems, smart autonomous robots and their subcategories,
- a comprehensive Union system of registration of advanced robots should be introduced within the Union's internal market where relevant and necessary for specific categories of robots, and calls on the Commission to establish criteria for the classification of robots that would need to be registered,
- the existing Union legal framework should be updated and complemented, where appropriate, by guiding ethical principles in line with the complexity of robotics and its many social, medical and bioethical implications
- it should always be possible to supply the rationale behind any decision taken with the aid of artificial intelligence that can have a substantive impact on one or more persons' lives; considers that it must always be possible to reduce the artificial intelligence system's computations to a form comprehensible by humans; considers that advanced robots should be equipped with a 'black box' which records data on every transaction carried out by the machine, including the logic that contributed to its decisions,

<sup>7</sup> Preparing for the Future of Artificial Intelligence', Executive Office of the President and the National Science and Technology Council (NSTC), Committee of Technology, 12 October 2016, page 11 [https://www.whitehouse.gov/sites/default/files/whitehouse\\_files/microsites/ostp/NSTC/preparing\\_for\\_the\\_future\\_of\\_ai.pdf](https://www.whitehouse.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf).

<sup>8</sup> <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2017-0051+0+DOC+XML+V0//EN>

- asks the Commission to consider the designation of a European Agency for Robotics and Artificial Intelligence in order to provide the technical, ethical and regulatory expertise needed to support the relevant public actors, at both Union and Member State level, in their efforts to ensure a timely, ethical and well-informed response to the new opportunities and challenges, in particular those of a cross-border nature, arising from technological developments in robotics, such as in the transport sector,
- Calls on the Commission and the Member States to ensure that civil law regulations in the robotics sector are consistent with the General Data Protection Regulation and in line with the principles of necessity and proportionality.

Discussions in relation to the adoption of a full normative act and in relation to the harmonization of current framework regarding product liability, machinery standards and intellectual property are still carried out.

### 3. Conclusions

Although recent legal developments have opened discussions regarding a new dimension of humanity's evolution, the outcome of these discussions is yet to be effectively imprinted in a mandatory regulation, at least at the level of the European Union.

Since artificial intelligence machines and programs shall use the data collected from individuals for their analysis, an important prevention step has already been taken by Europeans through the adoption of the The General Data Protection Regulation (GDPR) (EU) 2016/679.

However, the necessity of a normative act regulating aspects deriving from the liability of artificial intelligence products still remains unaddressed and must be considered

also from the perspective of its mandatory character. To this end, it is imperative that the act adopted by the European Union is a regulation and not a directive, which Member States may implement with their own methods. Also, given that the main economies of the United States of America, Japan and Russia are not part of a common union as connected as the European Union, similar rules should be adopted in these countries, as well, so that contractual partners around the world benefit from the same protection.

Other aspects which must receive a final legal regulation are the ones related to the common understanding of the notion of a "robot". Currently, the European Parliament agreed on the several characteristics of a "smart robot", out of which it is relevant to mention the possibility to acquire autonomy through sensors or by exchanging data with its environment (inter-connectivity) and the trading and analyzing of that data and the adaptation of its behavior and actions to the environment.

In addition, it is important that technical specialists fully collaborate with legislators in order to draft full and comprehensive legal standards for the utilization of robotic machines. The development of common technical standards should not be ignored either, since this feature is likely to prevent or to solve cases in which one party bases its claim on the other party's liability and responsibility for the autonomous machine.

Last but not least, a controversial issue was addressed by the European Parliament<sup>9</sup> regarding including a form of "electronic personhood" to ensure rights and responsibilities for the most capable Artificial Intelligence. An improper regulation of this aspect has the most serious consequences in connection to liability of damages produced by robotic machines, applicable currently to non-man driven vehicles, for example.

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<sup>9</sup> <https://www.theguardian.com/technology/2017/jan/12/give-robots-personhood-status-eu-committee-argues>.