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AI, Machine Learning & Big Data

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CONTENTS

Spain

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Trends

Frankly, Spain faces a serious delay in relation to artificial intelligence and robotics, technologies which need urgent development in Spain. Such development needs adaptation in basically two fields: financing and legislation.

Between 2009 and 2015, the investment destined to R&D&I was reduced by half in Spain, to the extent that Spain in innovation rankings was placed alongside countries like Croatia, Poland, Latvia, Hungary, Greece, Slovakia, Cyprus, Italy, Malta, Lithuania, Estonia, Portugal and the Czech Republic, with only one group below that, which included Bulgaria and Romania. In the ranking, Spain places 17th out of 28, well below its economic weight. According to the EU Commission, between 2010 and 2016, performance has even worsened, hampered by a lack of funding and public support, low SME contribution, low entrepreneurship, lack of venture capital funds to invest, no private funding for public projects, or few large foreign-controlled companies, among others.

While other countries designate relevant funds for research on artificial intelligence, the Spanish government is still studying how to address this problem.

As for legislation, even being within the legal framework of the European Union, where studies for new positions have been ongoing since the beginning of 2017, Spain is far behind, as these initiatives are basic and influential in terms of financing.

On behalf of the European Union, important terms are already mentioned, such as "electronic person". This term brings with it other new considerations, such as a new ethical code or even a basic income. In this way, this electronic person will contribute in some way to the development of the country in which it is. Another strong question studied is the establishment of a clear legal responsibility for the acts of this person. The main idea, after ruling out possible liability of the manufacturer, is the creation of a fund or compensation insurance. This fund would be responsible for taking legal costs if, for example, an autonomous car is involved in a traffic accident.

However, there are two initiatives, as part of the Digital Agenda for Spain, that promote investment in artificial intelligence and robotics. This same Digital Agenda has as one of its main objectives to promote R&D&I in the industries of the future, although theoretical and with little real action. These two initiatives were included in the Agenda in 2015 in order to support the development of these sectors, and are specifically: the National Plan for Smart Cities; and the Plan to Promote Language Technologies.

This National Plan for Smart Cities, designed in 2015, has been relieved by the Smart Territories Strategy, with the idea of continuing the work carried out by the previous Plan.

In this context, the MOBILus project has to be mentioned. MOBILus is headed by Barcelona and consists of a partnership of 48 members from 15 countries, and has been chosen by the European Institute of Innovation and Technology (EIT) to lead its Knowledge and Innovation Community. The work of the consortium focuses on moving people, connecting communities, supporting the business fabric and reimagining public spaces.

More recently, the Ministry of Science, Innovation and Universities (MCIU), in line with the 2018 Communication from the European Commission to the European Parliament, the European Council, the Council and the Economic and Social Committee on AI for Europe, and the subsequent Coordinated Plan on AI, has worked on a Spanish R&D Strategy in Artificial Intelligence. The MCIU created in November 2018 the Working Group Artificial Intelligence, which is dedicated to the design of this Strategy. The Strategy for AI in R&D&I in Spain establishes a series of Priorities that will be framed in the new Spanish Strategy for Science, Technology and Innovation (EECTI) 2021–2028 and that will have to be developed in initiatives and activities defined and financed through the State Plans for Science, Technology and Innovation (PECTI), mobilising the synergies between the different levels of public administration and through the co-development of the public and private sectors. A condition in the development of technologies and applications of AI linked to this Strategy will be to avoid the negative bias and prejudices of society, such as in relation to gender, race or other forms of discrimination, and from which AI decision-making systems must be freed.

Ownership/protection

In Spain, the most complex algorithms, despite the fact that they are often the result of research, design and programming by a subject or entity, and the importance they have in the business model of more and more companies, still do not receive the necessary attention and protection.

They have no place in industrial property rights, and their inclusion in copyright may be insufficient and forced. However, a possible solution for this normative vacuum could be found in the analogical application of Article 133.1 of the Royal Legislative Decree 1/1996 of April 12, 1996, approving the consolidated text of the Law on Intellectual Property, which protects databases not for their originality, but for the simple existence of a substantial investment at an economic level, use of time or effort. Another situation is given regarding the most complex algorithms which are usually written in computer code which turns the algorithm into software.

Regarding the ownership of such complex algorithms, according to the law of intellectual property, the exploitation rights of the algorithms carried out in the scope of an employment relationship are assigned to the employer, differentiating two assumptions. On the one hand, when they are carried out as a result of the employee's habitual activity; and on the other hand, when the algorithms are carried out outside the employee's normal functions.

With respect to the first assumption, the regulation simply attributes to the employer the results of the employee's work. This is a logical question derived from the fact that the worker was hired precisely to carry out the particular algorithm, so there is no doubt that the worker's salary is sufficient justification for the employer to appropriate the result of the work.

In the second case, in case of creation of an algorithm outside of the usual functions of the worker, Intellectual Property Law *ex lege* gives the employer the exploitation rights to the computer program created by the worker, without having to pay any compensation.

The Supreme Court and doctrine have come to understand the application of this assumption exceptionally and only when there is no doubt that the requirements – the express instructions of the entrepreneur – have been met.

This regulation – regarding the computer programs created by employees – launches a "wager" of all or nothing. If the employer can prove that he gave precise instructions to the worker to create the concrete algorithm, the worker will have no economic right over him, even if he performed it outside of his usual functions or for what he was hired to do in the company. On the contrary, if the company cannot prove it, the worker will have all the economic rights over the algorithm, without the company being able to do anything.

In short, if the algorithm is created following specific instructions from the employer, he will be the owner of the algorithm; if, on the contrary, the worker creates the algorithm on his own – with the company's computers or with his own computers, in his working hours or leisure time – he will be the owner of the algorithm.

In fact, the only means available to companies to protect this valuable intangible asset is the figure of trade secrets.

With the publication of the new Directive for the protection of trade secrets, and the resulting transposition rule in Spain – Law 1/2019 on Commercial Secrets – the protection of trade secrets, and therefore of the algorithms that may be included in this category, has been significantly extended, recognising protection measures that will allow companies to protect these valuable intangible assets against third parties; and from now on, this type of protection has some legal certainty, although in some cases it is not yet sufficient.

Antitrust/competition laws

The use of data is not a new phenomenon regarding antitrust and data advantage issues – in non-digital markets maintaining customer data bases, conducting consumer surveys and market research have long been business activities. However, digitisation of the economy has had an enormous effect on the nature, sources, applications and the volume of data. Actually, the risk of foreclosure associated with the concentration of data is being looked at in the context of merger control, which does not exclude the use of antitrust enforcement tools to tackle behaviour related to artificial intelligence and big data activities, as exclusionary or exploitative "big data" conduct could lead to enforcement action. Nevertheless, theories of harm underlying the prohibition of illicit conduct are premised on the capacity for a company to obtain market power from its data, unmatched by its competitors. Before it can be determined whether data contributes to the strengthening of a market position, the context of the reality and extent of such "data advantage", the features found in online markets as network effects, multi-homing, and market dynamics, conducive to the market or not, have to be considered from the beginning. Two aspects appear to be of relevance here: the scarcity *vs.* replicability of data; and the scale of the data trove.

Access to data by an operator does not automatically preclude access by other operators. Multihoming by customers or the diversification of services offered by a single source opens opportunities for the collection of user data. Access to data may be conditioned on the company's capacities to build a large data base on personal or non-personal data. This, in turn, depends on the extent to which network and experience parameters as well as scale economies act as entry barriers. The availability of third parties' data, i.e. coming from data brokers, may cancel out big data accessibility concerns, but the availability and impact of external sourcing depends very much on the nature of the data concerned and the applicable rules – from personal data protection, trade secrets and intellectual property in general.

In terms of scale (and scope) of data, their strategic relevance and foreclosure opportunities must be verified. These two points depend on which level a company may gain economic benefit, and beyond which data volume those benefits decrease or cease to exist as a whole. The scope of data may also be as relevant as scale, depending on the market conditions of each case.

Among other possible problematic uses of data, the following stand out:

Collusive agreements: An algorithm can facilitate an agreement between competitors that limits competition, i.e. by means of the automation of the pricing process which facilitates monitoring and coordination between competitors. The ability to obtain price information in real time can encourage automated price coordination; for example, when retailers sell competing products on sales platforms and, instead of competing independently, agree not to lower their prices to improve each other's offer, using monitoring and repricing tools.

Algorithms and barriers to entry: An algorithm may also be used to limit entry into a particular market or it may be used to exclude a competitor from a particular platform or to favour its own services or products or services of other companies (*Google* case).

These and other behaviours are being monitored and analysed by the various competition authorities and international bodies aware of the new scenarios and the limits of current regulations. In fact, the debate on competition law, big data and algorithmic fairness is generating great response among different interest groups, as the use of artificial intelligence favours the formation of cartels and strengthens their stability.

Respect for the rules protecting free competition is not only the responsibility of companies operating in a given market, but is also the responsibility of companies that do not operate in the market affected by the illegal conduct. Therefore, a programmer who is approached by two companies or a single company in order to design an algorithm that can be used to break the rules of the game may be sanctioned.

The ECJ confirmed in the *AC-Treuhand* case that a consultancy company "may be held liable for an infringement of Article 81 EC (Article 101(1) TFEU) where that company contributes actively and with full knowledge of the facts to the setting up or maintenance of a cartel between producers operating in a market different from that in which that firm operates". The rules protecting free competition, and in particular Article 101 TFEU and Article 1 of the Spanish Antitrust Law, prohibit all types of agreements and concerted practices which distort competition irrespective of the market in which the parties operate and of the fact that only the commercial behaviour of one of them is affected by the conduct.

Board of directors/governance

What governance issues do companies need to be aware of, specific to AI and big data?

Companies needs to be aware that the organisational challenges associated with AI occur at multiple levels: collaboration and work modes; resources; and strategic forecasting, combined with big data, entail tailored governance. When data enters into automated systems that are capable of learning, deduction, suggestion, diagnostics and even prediction, governance should take into account the more specific and multi-scale evolution of data AI.

The effects of big data and AI on internal communication, education and awareness benefit from the support of the top management. AI can provide a strategy of process optimisation thanks to automation and the development of predictive analyses (maintenance, fraud, loss of customers) and service personalisation.

To get big data and AI well established, a company needs the resources to create a big data trove, a mature plan for data upstream, the process of skills building and opening up an

ecosystem for its teams, and to familiarise its teams and management with the technology. In order to archive satisfactory results, companies must inventory data, create governance units, define roles and responsibilities and decide who would own the data.

How do AI and big data affect the due diligence process for boards of directors?

Due to the pervasiveness of electronically stored information and search and retrieval technologies, discovery has changed rapidly. The due diligence process is getting more and more automated, leading to cheaper, faster transactions with better risk management. Random indexing programs already offer an efficient solution to the challenge of classifying, organising, prioritising and highlighting corporate documents. Thanks in large part to advances in e-discovery, M&A due diligence tasks are ripe for automation and significant gains may be realised.

How do AI and big data affect a board's fiduciary duties?

As machine learning algorithms become more advanced, we should expect to see more of them employed in innovative ways in governance issues. Robot-advisers on due diligence and fiduciary duties are merely another example of these algorithms replacing a traditionally "human" role, which may encourage a partially new approach to the "business judgment rule" which was enshrined in Spanish law by the Reform Bill of the Spanish Companies Law (*Ley de Sociedades de Capital*) to improve corporate governance (passed on November 17, 2014). The question of how a machine algorithm could possibly comply with this rule may be addressed with the fact that robot-advisers are no less likely to meet this rule than human advisers. Robot-advisory firms can design their programs to mitigate the concerns that have given rise to fiduciary duties. Accordingly, the fiduciary duty rule may provide an adequate liability scheme for current robot-advisers, ensuring that victims of algorithms falling short of the standard can recover from the registered investment adviser who can best shoulder the cost; that is, the firm. As machine algorithms grow in sophistication, the law and even more the courts will consistently face questions of who should be held at fault for increasingly more independent and truly autonomous decisionmakers. The EU is actually designing a legal regime for autonomous machines. Alternate liability regimes, like implementing a compensation fund, should ensure that victims of autonomous machines receive relief. These schemes could also provide some protection to manufacturers and developers by providing limited liability in return for payments to the fund. Thus, companies should take steps to create an appropriate corporate framework, like an insurance or compensation scheme, and adopt changes that can handle this increasingly complex issue, thereby paving the way for a legal and corporate regime with the capacity to handle truly autonomous technology.

How are AI and big data affecting communication plans to shareholders, vendors, etc.?

Generally speaking, the effects of AI on communication plans are mainly on the capacity to analyse the digital landscape of networks, to report on exact insights and real-time updates, and to deliver information to even the smallest target audiences in innovative ways using virtual and augmented reality applications. Further, shareholders will be able to virtually join a conference from their offices and experience a briefing or information session. In addition, the delivery of faster responses to crises, following pre-set parameters as part of human-centric contingency plans and the ability to prevent corporate communications from inconsistencies, discrepancies, conflicts and predictions of oncoming issues, will increase the reputation of the company. AI will also help expose false information and identify deception.

Regulations/government intervention

Spain does not have any specific laws relating to AI, big data or machine learning, nor is the Spanish legislator considering specific laws. But as machines are increasingly likely to replace positions occupied by humans and new technologies are turning to the spheres of robotics, which may prompt calls for the improvement of regulation, and faced with the avalanche of applications of artificial intelligence, the European Union has already made proposals for laws to frame the various controversies that may occur. Besides that, we have already mentioned the Spanish strategy paper above.

In February 2017, the European Parliament Resolution of recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)) was adopted.

Parliament's Resolution calls on the Commission to establish a common legal framework throughout the EU in the field of robotics and artificial intelligence, so as to be able to anticipate the regulatory projects on the subject in certain countries.

Some of the axes of this proposal are the need to establish ethical standards, to determine liability in the case of autonomous vehicles – proposing the existence of compulsory insurance and supplementary funds for possible victims of accidents involving these vehicles – or the creation of a specific legal personality for robots to clarify the determination of liability in the event of causing damage.

Accordingly, Parliament called on the Commission, on the basis of Article 225 of the TFEU, to present a proposal for a directive, on the basis of Article 114 of the TFEU, on the rules of civil law in the field of robotics, on the basis of a series of recommendations grouped into the areas, amongst others, of:

- General principles concerning the development of robotics and artificial intelligence for civil use.
- Research programmes on the possible risks and opportunities of artificial intelligence and robotics in the long term.
- Ethical principles, in view of the potential for empowerment of the use of robotics, in the light of human health and safety, freedom, privacy, integrity and dignity, self-determination and non-discrimination, and the protection of personal data, reflecting the complexity of the field of robotics and its social, medical and bioethical implications on the development, design, production, use and modification of robots.
- Personal data and the flow of personal data, to ensure that civil legislation in the field of robotics complies with the General Data Protection Regulation and the principles of necessity and proportionality for the proper use of robotics and to avoid possible security breaches.
- Autonomous transport (all forms of remotely piloted, automated, connected and autonomous road, rail, inland waterway and air transport, including vehicles, trains, vessels, ferries, aircraft and drones, as well as all future forms resulting from development and innovation in this sector) is the area which most urgently needs EU and global rules to ensure the cross-border development of autonomous and automated vehicles, as it will have an impact on aspects such as civil liability (liability and insurance), road safety, all environmental issues (e.g. energy efficiency, use of renewable technologies and energy sources), data issues (e.g. access to data, protection of personal data and privacy, exchange of data), ICT infrastructure issues (e.g. high density of efficient and reliable communications) and employment (e.g. creation and loss of jobs, training of drivers of heavy vehicles for the use of automated vehicles).

- Care and medical robots that allow medical and care staff to devote more time to diagnosis and better planned treatment options, improve mobility and integration of disabled or elderly people, etc.

- Civil liability regime for damages caused by robots, pointing out that the risk management approach does not focus on the person "who acted negligently" as personally responsible, but on the person or persons capable of minimising the risks and managing the negative impact, imputed proportionally to the actual level of instructions given to the robots and their degree of autonomy – so that the greater the learning capacity or autonomy and the longer the robot's "training", the greater the responsibility of the trainer.

- Access to source code, input data and robot construction details which should be available when necessary, to investigate both accidents and damage caused by "intelligent robots" and to ensure their continued operation, availability, reliability, safety and security.

Another noteworthy initiative refers to the setup of standards for artificial intelligence.

The European Commission has issued a Communication COM(2018) 237 Artificial Intelligence for Europe, marking a European initiative on artificial intelligence. This initiative is considered essential for the future of the European economy and the leadership of national industry in a competitive global market. It recognises the role of standardisation as a response to the challenges posed by this key technology, especially in terms of safety, reliability and ethical considerations. CEN and CENELEC standards support compliance with European legislation through harmonised standards. The European Commission foresees that the application of artificial intelligence will impact on compliance with several European directives, for which there is a solid normative body.

Artificial intelligence is advancing continuously and is widely affecting industries such as automation, data management and integration of intelligent technologies. Society is also impacted as artificial intelligence changes the way business works, production is optimised and new worker profiles are needed. Thus, AI affects a multitude of sectors in which standardisation has great relevance: intelligent manufacturing; robotics; autonomous vehicles; virtual reality; health; visual recognition; data manipulation and analysis; domestic appliances; and cybersecurity. In all these sectors there are currently essential standards that must be updated to incorporate this new technology.

The European standardisation system is essential to avoid the fragmentation of the European Single Market and to guarantee a people-centred approach to artificial intelligence, ensuring that society benefits. The European standardisation bodies, CEN and CENELEC, constitute a trusted environment for the development of artificial intelligence, as European standards deal with aspects of reliability, privacy and security. In addition, they work together with the international organisations ISO and IEC, where the ISO/IEC JTC 1 SC 42 Standardisation Committee on Artificial Intelligence has just been created, which is already developing the first two international standards on terminology and reference framework for these systems using machine learning.

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Sönke Lund has a degree in Law from the University of Hamburg, and was admitted to the Hamburg Bar in 1991 and to the Barcelona Bar in 1997. He is specialised in Intellectual Property Law, Private International Law, Consumer Law, Distribution and International Sales, IT and TMT.

Amongst others, he is a member of:

- the IBA (International Bar Association) where he is the former Chair of the International Sales Committee, Program Officer of the Alternative and New Law Business Solutions Committee and Membership Officer of the Agricultural Law Section. Sönke's other experience includes that in the Dispute Resolution Section; Energy, Environment, Natural Resources and Infrastructure Law Section; and the Intellectual Property, Communications and Technology Section;

- the ALAI/ALADDA (*Association Littéraire et Artistique Internationale/ Asociación Literaria y Artística para la Defensa del Derecho de Autor*);

- the GRUR (German Association for Protection of Intellectual Property – Special Committee on Data Law – International Development Section);

- the Academic Association of Cartel Law (*Studienvereinigung Kartellrecht*); and

- the German Association of Lawyers – Working group of International Economic Law (*Deutscher Anwaltverein – Arbeitsgemeinschaft Internationales Wirtschaftsrecht*).

Sönke was also a contributor to the Spain chapter of *The ICLG to: Telecoms, Media & Internet Laws & Regulations 2018*.

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